

532-574



Calc.	.39	.58	.85	1.26	1.85	2.7	4.	$\frac{64}{100}$
Found				1.2	1.8	-	4	

532

Little Arctian on grass Jefferson Highlands, N.H.  
 Hd bilobed, shiny black, translucent white  
 mottling at sides, a patch at vertex of  
 each lobe and a broken inverted V-mark  
 including  $\Delta$ , a few setae; w. 1.2. Body a  
 little flattened, rather suggesting Nola but  
 feet normal. Ants large black with  
 short rather bristly black hairs mixed  
 with pale; iv very small, i-iii nearly in line,  
 ii only slightly prot. vi as long as v, leg plate  
 black.



Body with whitish ground,  
 blotched with red dots very  
 5d and stig. A black d  
 shade band filling in be-

tween warts 5-12, a smottled, trans striped  
 lateral one & traces of brown-black s-v.  
 G-sh & anal pl. black. Ground forms an obscure  
 whitish s-s band. molt June 22 Hd as before but  
 the white spaces smaller. Body largely mottled  
 streaked with black, a pale s-d line above  
 (sh hd 1.8)



red blotched between the warts 8-d & 8-s.

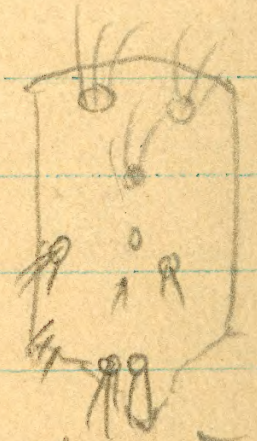
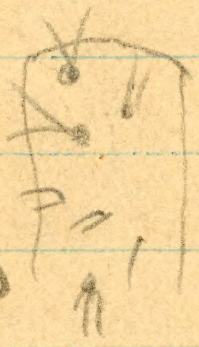
Hair short, stiff, black & white. Molt June 27  
 Hd bilobed black,  $\Delta$  yellowish. Black part on the large  
 compound peckled, leaving a number of white streaks  
 on the sides, a streak over apex and a V-mark II  
 &  $\Delta$ , lower  $\frac{1}{2}$  of  $\Delta$  & ant. white. Body black, a white  
 sd line blotched with red between i-vii, side another  
 with white, a white ss band passing over v, with  
 orange blotches above it over the stung iv. Warts large  
 i-iii & vi dark iv & v reddish. i-ii on 12  $\square$ . Dorsal  
 black broken by little white dot close to incision  
 spiracles white. Hair short, mostly black & white.  
 most of white s-v. i-vii contiguous, both large. [cf 30B]  
 Later the white marks are pale yellow.

Molt July 5 Hd 4  $\pm$  = 30B g.v. (also see blown larva)

= Asilarche albovenosa

Feb 17  
 1897

612 got stage May 27  
 Hd 4.2 (sh. hd 3.1)  
 no change (desc.  
 from blown larva)

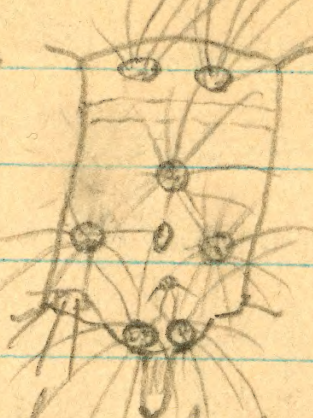


Stage I 1902  
 BB612

Calc.	.61	.92	1.4	2.1	3.2	ratio .66
Found	-	.9	1.5 $\pm$	2.1	3.2	4.2

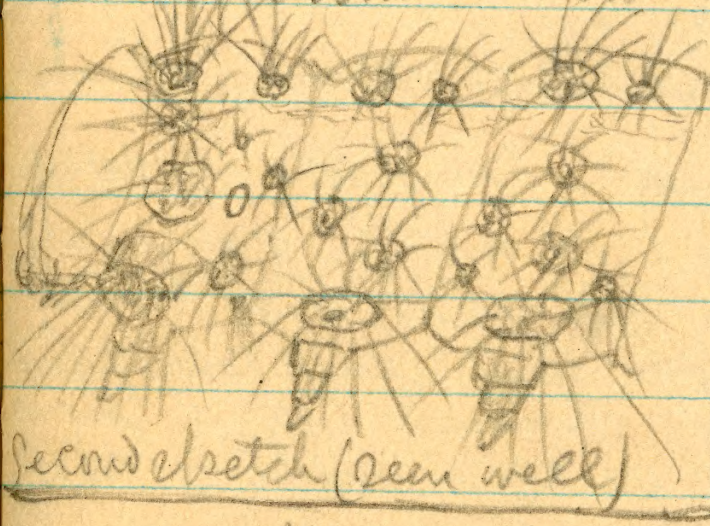


(see below) 533 (see 612)



On poplar (P. trem.)  
 Jefferson Hgts, Wt  
 June 21 '95. Gray,  
 flattened, soft hairy.

Body black with a faint white sd line  
 Hair fine, soft, white, not very long but  
 dense; appearance gray, joint 6 darker  
 nearly black. Body rather flattened, anal  
 feet spreading, divergent, sd warts on 2 large  
 On 1 & 12 vi is a single wart, and ant.  
 the upper ant. 2<sup>d</sup> wart is higher up. (sketch 9)



Molt June 27 Hd 1.5  $\pm$   
 Warts much less prominent  
 Body all covered with  
 2<sup>d</sup> hair about like those  
 from the wart. Traces of

a wart in front of iii, v lost in 2<sup>d</sup> hair. vi rather  
 produced into a short lappet and 12 enlarged  
 dorsally, arranged gently obscured now, whereas  
 very plain before. Body gray, darker dorsally



an orange s-d line & narrow white lateral  
one. Hair soft fine, dense, black & white, the  
dark hair predominating d. a series of orange  
ad-d. dots above i & ii. Hd gray, hairy.

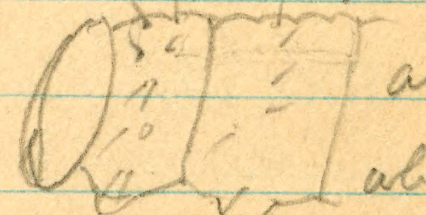
Molt July 4 Hd soft blue gray, black dotted with  
fine short pile <sup>(shad 2.1)</sup> w. Body flattened, a slight  
bump on 12, a large s-d tubercle on 2. Abdomen  
low, even, obsolete, riproduces into a short  
lappet. Hair fine & soft, not long. Blackst d  
pale & thick s-r. large 2<sup>d</sup>. Segs 5-annulate.  
Dark gray on orange ad-d. dorsal dot on 2<sup>d</sup>, 4<sup>th</sup>  
annulets, a narrow s-d line & transverse bands  
concealed in folds <sup>in middle of 3 & 4</sup> of 3-4 and 4-5. Dorsum black  
dotted with blue leaving a round black ad-d  
dot on each annulet, those opposite the orange dot  
narrowed out a little. Lateral region more finely  
blue dotted with <sup>(light, subtle dots)</sup> 2 narrow faint. pale longitudinal  
lines. Lappets & feet gray. Thoracic lappet largest,  
the abd. ones with post. part of vi most produced.  
A lateral black spot on 3, 4 and 12.

Molt July 10 Hd 3.2 ± as before. s-d above s-d line at the  
ant. & post. edge of each seg. a pale gray space, forming  
a series of interspersed lighter gray spots  
2 lappets on 2. More on abd. double.  
(See below larva)

Evidently = *Phyllodesma americana*

534 = 25

Notodontin? on sugar plum Jefferson Highland  
N.H. June 25 1895. Egg. shell, 3 mm edge of  
leaf on arduouside. Spheroidal, flat at base  
O ground glass of opaquish white 1.1 x .7 high  
reticulation linear but rather high &  
with rounded base, rather small & regular  
hexagonal. the pores at the angles distinct  
bead like, showing in both lights.

Larva Hd rounded, pale brownish <sup>green</sup> Body smooth  
shiny, translucent green with a faint  
white s-d line. 12 slightly enlarged, segs. <sup>4±</sup> an-  
nulate, setae distinct, fine pale, pointed.  
Sits on the midrib and humps each side. Setae  
normal, iv 58 post, v distinct.  ant.  
(violet) 3 setae on leg plate which

is concolorous & obscure as also oth. abd. anal pl.  
Larva all pale green; no dark plates or tubercles.  
Anal feet rather slender & directed somewhat backward.  
Molt June 28 Hd large, high, slightly above 2,  
genit. bilobed, narrowing a little to vertex, Δ.



small, green eye black; mouth brown, w. 1.2 mm.  
Feet normal, the anal rather weak, often not  
used. Setae fine, dark, but not very short, vi  
present, segments faintly 3-annulate.

Green, rather dark from the food & transparent  
a faint yellow sd line. A very transparent  
skin; tracheal line very distinct against food.

Molt July 5 Hd large higher than 2, slightly bilobed  
vertex hollowed behind, flattened before, nodules  
antennae well marked, 4 small. Pale green,  
not shiny, ocelli black w 2 mm. Body irreg.

head 3-4 annulate, tapering a little, 12 not  
enlarged, 13 small, anal feet rather weak  
not elongated same pale green, not shiny

a broad pale yellow sd line, faint 2 & 13,  
a narrow more obscure & more greenish lateral one  
setae fine and short, all pale. No other marks

Later a soft white bloom covers body, the tubercles  
forming slightly whitish granulations. The lateral  
line is no more distinct than the tracheae

and looks if 1 sd distinct band seen a little

trans. streaked on the annulets. Later dist  
pruinose almost downy, missing even sd line some  
Anal rim faintly yellow. Sd line fainter at ends.

Molt July 10 Hd whitish green slightly shiny, shape round  
not at all below 2 though <sup>but</sup> slightly higher, indented  
labrum white, jaws & ocelli dark. Body green,  
with white bloom a broad not very distinct white  
sd line. Segs 4-5 annulate with large white  
flattened granules, like tubercles but non setiform  
sd line large transverse granular; anal rim  
pale yellow. Spiracles pale brown ringed. Setae  
fine & short, pale, normal, single. Sub on green  
leg plate. D. region whiter than lateral one.  
Hd 3 ± Later very pruinose white, granular, sd white  
anal rim yellow; Hd less pruinose, jaws concolorous.

Molt July 18 Hd 4.6 ± High, not bilobed, rounded, 4 small  
vertex about level with 2, labrum white, jaws yellow  
green, whitish bloom above. Body green covered with  
flat white elliptical granules on the sides, under  
more confluent d. forming a straight white sd  
line 3-12 composed of irregular granular areas  
spiracles yellowish with brown edge, anal rim  
yellow, leg plate green. The feet green.

Ocelli black centrally, whitish rimmed.  
Setae very short, nearly obsolete, normal, but  
a considerable number on leg plate.  
Segments not very regular 8-annulate.  
Evidently = nodata gibbosa.

(see bloom example)



Calc. .38 .55 .78 1.12 1.6 2.3 ratio 70  
 Found .4± .5 .7 1.15 1.6 2.5±

535-538

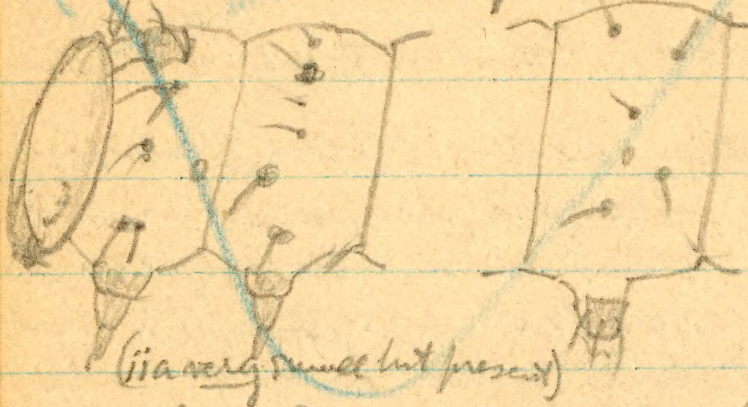
July 12

*Eudryas* on *Epilobium*, Jefferson Highlands

N.H. June 27 1895

Head bilobed, all pale brown, w. 4±

Body yellowish whitish

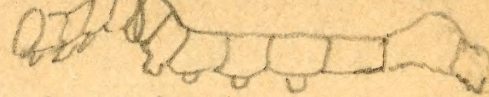


is enlarged I & II, 5-7 also greatly enlarged but apparently only slightly enlarged and altered. Cth canal & leg. plates blackish. Tubercles brown, mostly minute, but those on 5-7 and 11 surrounded by large spots, those on 12 with small spots. Thor. feet dark. Abd setae normal for stage I.

July 28 Same as first, a little more brown spotted. Setae fine pointed, tubercles black, subprimaries present. Ant. for a little smaller but not much, not noticeable except that lower holds them off the leaf. Rests with ant. end elevated.

Later tubercles black, conic, irregular in size. Brown marks around trunk slight. Body green from food. A dorsal line of irregular opaque white shading. July 2 (Sh. hd 5) Large black conical tubercles with long pale setae. Body greenish blotched with opaque white sep. d. and a few brown markings as in last

as 5-fold green appears in a series of white patches, the largest 11-12. Feet black, venter dark. Hair long distinct with stiff, white, perfectly single & normal for inst. Noct. (see bluish larva)



stage. Feet black. Hd whitish, its tubercles all shiny black as on body, a little brown around mouth and eye. 4-7 & 12 form 2 humps as held by larva, apparently really a little enlarged.

July 5 (Sh. hd 7) Hd 1.2± Hd white, the black spot of before supplemented by many small dusky spots. The black tubercles form 3 trans. rows, a black dentate line above mouth. Body white a little tinted with orange on 5, 6 & 12 d. and along the region of its whole length. Tubercles large Δ black, hair all pale, rather stiff and long single. Body is mottled with brownish black in irregular streaks between the tubercles except 5-d where the white ground prevails broadly. Prim. of spiracles thoracic feet & leg. plates black.

July 8 (Sh. hd 1.15) Hd 1.5± white with many black spots, all spots of preceding stage equally black. Body as before, the black tubercles & numerous irregular marks velvety. The orange shades spread tending to form transverse bands, on 5, 6, 11 & 12 the faint orange bands are complete, in the other segs. a 5-5 spot with perhaps a hint of the orange above. The black marks are thickest ventrally, predominating, thick laterally, thin sd & along d. line. They form a series of irregular marks enclosing a broken white d. line of ground color. Feet black, hair long pale. The appearance is like white black mottled with a white sd line & red bands, but this resolves itself with time as above 5-fold becomes white patched, most distinct interseg 11-12. Orange bands more distinct faintly crossing middle of each seg 5-12.

July 10 Hd 2.5± Hd as before, white with many black spots of various shapes mouth & antennae black. The s. has 2 dots, at base a light blue red side is a short v-shaped one as app. The lobes & venter have several large rounded spots & some smaller sub-stigmatal ones. Body white the segs. banded with orange, obscure except on 5, 6 & 12, areas of 5 & 12 greatly hunched up. Tubercles large velvety black, but low conic or almost flat not produced. The velvety black marks on the body form narrow irregular broken and dotted transverse lines, some not represented by abrupt marks, all broken sd so as to give appearance of white sd band, about 6 per seg. but so broken and irregular that there is no positive number. Subconspicuous, forming certain branching marks irregularly, x or Y shape.



Calc. .64 .8 1.0 1.3 1.6 2.1 2.6 3.2

Found (6) - - - 1.3 1.6 2.1 2.6 3.2

" (536).65 .8 1.3 2.2 3.3

536 = 6 (June 14)

*Pyche*

*Apatelode tenebracta* eggs from Miss Burton from  
J. Doll. Laid June 25 1895.

Flat below, above rounded, flattened, concave on rostrum  
or a little hollowed in a ring near edge

translucent pale yellow, d. 1.5, height .4 mm

Reticulation faint, narrow, the depression  
rounded hollow, shallow, obscure, the edges

forming the reticulation which are consequently  
wide at 4 but hardly any breadth between

ones visible as high points at 4. At base is a  
distinct rim, 1 cell broad, thickened at margin

contents full of oil drops, more distinct than marks

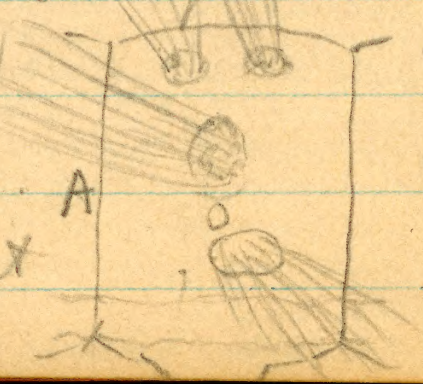
Hatched July 10 Hd whitish w. 6 mm. Body white

thickly covered with long fluffy white hair  
without evident warts. Hair very fine, thick

down like and long with a few more stiff  
hairs. a lot of d. hairs. a large lateral tuft

another below behind  
Serrula on leg plate

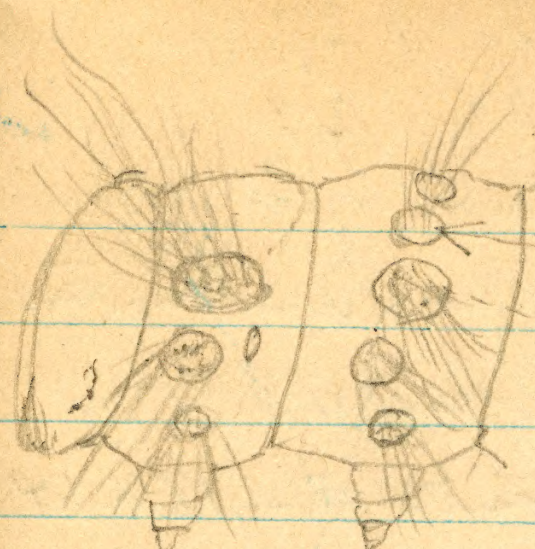
Wart areas perfectly flat



sprinkle

no vi seen

granular



Drawn July 10. I think O.K. but  
can't be sure of this one  
(in line with iii)

Another → vi present but  
mostly concolorous granules

July 17. On 4  
A another in front  
at 4. Can't be  
very positive  
as warts are as  
concolorous and the  
fluffy hair rising everything up.

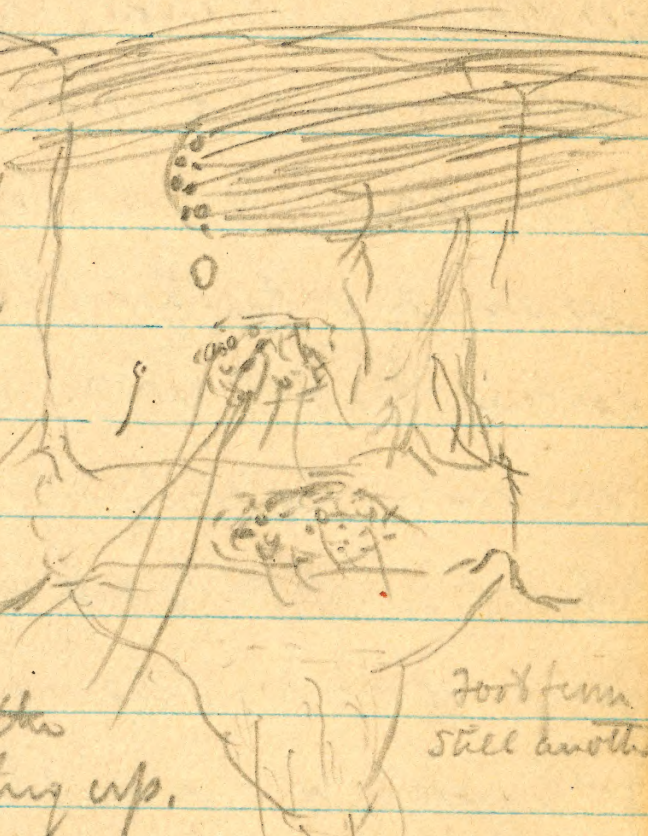
Pulled off some hairs. This OK. The hair looks a 4 in  
front may be 2<sup>d</sup> perhaps <sup>no hairs present</sup> and then is a  
single hair between i and ii. ii & iii is really part.

July 19 Hd whitish with a d. row of quadrate black  
dashes 5-12. Hair very fluffy white, long. Hd .8 mm  
warts about as before. 2<sup>d</sup> hairs not seen, if present  
can not tell from those bending over from warts.

A few black hair dashes from 3, 4 and 12. (Sh hd .8)  
July 24 Same; white hair awful fluffy, 4 or 5 mm long  
fine & not curving backward. Hd 1.24 (sh hd 1.3)

July 27 A white fluff. no pencils. Hair as before but very  
abundant long curving also curving body Hd white 2 mm ±  
a thin black pencil at 12 d and a few black hair 3-4

Aug 11 Hair fluffy white with long black pencil  
but appearing single pencils on 3, 4 and 12 Body  
pencil white with a row of lateral black spots be-  
side the d. ones. Hd. white 3.3 ±  
(See blown larva)



Foot from  
still another

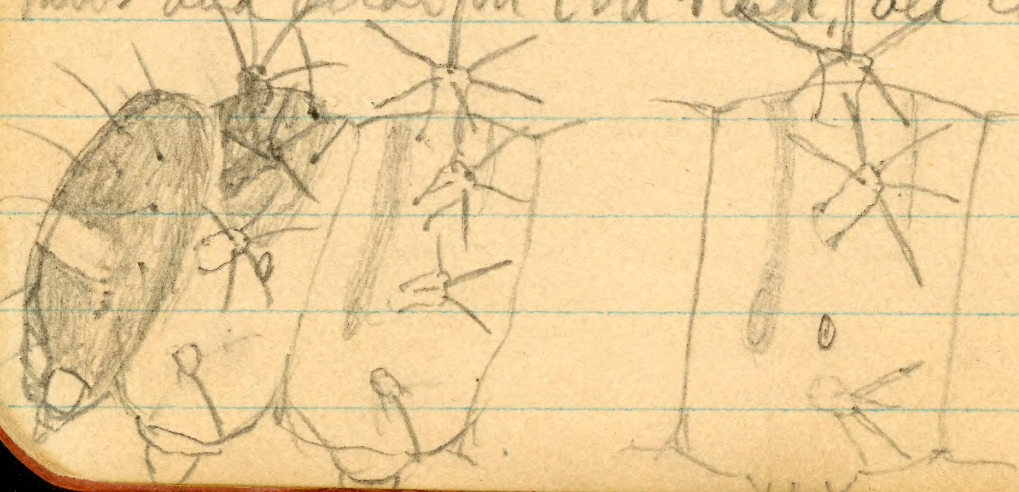


Calc.	1.07	1.61	2.44	(3.0)	3.7	(4.5)	5.6
Found	1.3	1.6	2.5	3.2	3.7		

537

Eggs of *Callosamia angulifera* from Univ. Winton  
 Elliptical, flattened above & below or a little  
 concave, one end higher than the other  $1.8 \times 1.4$   
 $\times 1.0-1.2$  mm. Surface irregularly bumpy granular  
 arranged indistinctly in reticulation. All  
 covered thickly with a layer of pure white  
 varnish. Color of egg itself slight yellowish.

Hatched July 3 Hd black with a transverse white  
 band across mouth and another at upper part  
 of clypeus; w. mm. slightly bilobed, rounded,  
 setae few. Vents elongate with a crown of pale  
 hairs, all of same size. Cth, anal. pl., & thor.  
 feet black; body light yellow with smoky  
 trace of 2 trans bands per seg. reaching spiracles  
 a little more distinct toward extremity, blackish  
 Vents and setae on cth black, all concolorous



Had no  
 tulip tree  
 and they  
 refused all  
 else & died

ratio  $\frac{66}{81}$

More from Univ. Winton July 1896. Eating tulip tree.

Stage July 27 Hd 1.6 white, a black line across  
 above mouth and 2 joined trans. patches  
 above D. Body whitish, seg. twice trans.  
 banded with black on each side of the  
 tubercle. Tubs. all yellow, alitae, with  
 weak seta and 6-crown. Cth pale ex-  
 cept a single band. Setae pale.

Stage Aug 2 Hd whitish, a narrow black line  
 across lower part of D, a spot in middle  
 of lobe & one on eye. w. 2.5. Body frosted  
 greenish white, tubercles reduced to black  
 buttons except D2 yellow, D3-4, pink  
 with black basal ring and D12 yellow with  
 black ring, all with fine small pale  
 crown. Anal pl yellow edged on with  
 black before. Feet green anal feet  
 black edged. D34 salmon, coral red or yellow  
 [Two small ones shed Aug 8, wds 3.2, same but  
 horns D3-4 12 smooth, black buttons  
 reduced to anal elevated spots, black spots  
 on head smaller. 7 large ones did not, but -]  
 Stage Aug 9 Hd 3.7 Smooth, white, tubercles



represented by shiny black spot except  
① 3-4 coral red and ① 12 yellow with  
faint black rings. Black dot on lobe  
and eye, imperfect ring on anal foot.  
Long horns smooth.

Shed Aug 13 but all dead. One only partly  
shed, all that shows just as before.

538  
coll. no. 11588

Aug 12  
195

11 eggs laid by ♀ *Alypia langtonii* on leaves  
of *Epilobium* in a jar, Jefferson Highlands June 29  
Laid on the under side close to the projecting  
midrib. ♂ flat at base, low conical, a little  
pointed at apex. Microsculpture depressed, surrounded  
by 2 concentric rings, granular reticulate; from  
the outer ring the round beaded ridges run to  
under surface. The ridges under lens are a series  
of rounded granules, but they alternate on suc-  
cessive ones so that the grooves are many as  
usual. Microsculpture a circular cup-shaped area  
of one circle of cells radiating from a center its  
edge forming the first ring. From there the ridges pass  
gradually over the outer ring becoming more distinct  
the ridges increase by confluence, not marked, owing  
to their granular nature. Diam. .55, height .3±  
Whitish, not shiny, marked with dark red-brown to  
an irregular blotched ring or broken spots different  
in each egg. Hatched July 8 Shape of 535 & looking  
Body whitish, food green when eaten, tubercles



large, black. Hd pale brown, varying in shade in different larvae, eye black. No looping for a while at the Epilobium. Full of green food. Like 535.

Molt July 11 Hd .5 ± pale. Not different from 535 II

Molt July 14 Hd .7 ± Like 535 III Tubercles much larger than before, conic; setae long and distinct.

Molt July 18 Hd 1 ± Essentially like 535 IV. Sd white bands seems narrower, only a breaking of lines & marks. S-V white patches, esp on 11-12.

Molt July 21 Hd 1.6 ± = 535 V The black marks form irregular transverse black lines, broken and confused. Probab. 8 per seg. as in octomaculata

Molt July 23 Hd. Hd 2.3 ± Cth red. Like 535 VI compared with brown larva, seems same, very some in shade. Black marks larger or smaller. 535 is a rather pale one.

Turned dirty purplish July 28, losing the yellowish orange tint of the transverse bands, the yellow forming spread from the bands and tinted large S-V white patch on 11-12.

Swags May 15 1896 *Allypica octomaculata* !!  
" Aug 12 1897 ♀ *laetioris*, all spots white!

\* *occidentalis*

+ *superans*

539 = 389

+ Acronycta on yellow birch Jefferson Hgh. N.H.  
Hd. White, 4 black dots on each lobe, 1 apex, 1 side 1 eye, 1 beside Δ. Body white, dark brown patches d. on 2, 5, 8-9, 12. Warts black, a narrow white d. line. Warts with long setae & bushy crown of small enlarged ends, a few of which stray off on skin as 2<sup>d</sup>. Hair black & white. D. marks spreading into other segs. faintly 12 □ it warts i-ii □ Hd 53 ±

+ *Allypica* on Anger plum capple. <sup>ash hd. 85</sup> June 24, 1895  
Hd white, pointed lobes, black patch at vertex, one each side of clypeus & one over eye. W 1 mm. Body white, warts i-iii\* all black (the rest pale)\* pointed conic with crown of hair all body blackly covered with short 2<sup>d</sup> hair enlarged at tip. 12 i-ii □. Dorsum broadly streaked with dark brown, cut by d. & s-d white lines. Hair black & white some of the 2<sup>d</sup> even black. Warts normal, is rather small stig. post. all nearly in a single transverse line. \* ~~not June 25 - Hd black, a white spot~~



\*Molt July 7 = 389 g.v. Hd.  $3.8 \pm$  shading into black below. (See Venners) 2<sup>nd</sup> hair practically gone.

gemmae at apex  $\Delta$ , white streaks on sides apices of pointed lobes pale brown; has few black hairs w.  $1.4 \pm$  Body whitish as before d, sd line white, distinct. Sides shaded brownish, 13 pale. 2<sup>nd</sup> hair short, club shaped. Tubercles actually pale but more or less closely mixed with dusky brown. Later broad faint reddish patches cover i-ii on abd. segs.

\*Molt July 1 Hd belated, black, dark red at apices of lobes. Angulus pale streaks on sides  $\Delta$  over  $\Delta$  yellowish smooth white, rather obscure. w.  $2.5 \pm$  Body dull purplish, d. line pale shading into reddish in center of each seg. 1 around i-ii, sd spots purple, sd line white broad below with purple; a faint reddish abg. line. Vents black. i-ii containing pale rings, 12  $\square$  nearly all black. The feet & leg plates black. Hairs black d., white s-v 2<sup>nd</sup> very much reduced, short, fine black, not evident with lens. Pointed tipped numerous. 13 pale later sides. 14 black tubercles pale. 2<sup>nd</sup> hair long & white s-v like that from mato

Calc.	.22	.34	.52	.78	1.19	1.8	val. 66
Found.				.8	1.15	1.8	

540

Slender green noctuid on dogbane, looks like *Barrothupa* but setae shorter and sparser on web; solitary Hd pale yellowish testaceous small, eyes black, w.  $.8 \pm$  Body slender, cylindrical, green, feet about alike the anal divergent. Tubercles concolorous, setae moderately long, white, single, normal, iii rather close to spiracle, iv post. subeq. 3 on leg plate. No marks: tracheae evident with lens but forming no line. Length 11 mm diameter of body 1 mm (sh hd .8)

Molt July 10 Hd  $1.2 \pm$  Same. Maxilla folded (sh hd 1.15)

Molt July 15 Hd  $1.8 \pm$  " Hatched July 21

*Sameys* May 11 1896 - a Deltoide.

(Cat no 12133)

*Phryganoma seppunctata*



541 = 498

*C. regalis* eggs from Mrs. Minton laid June 25.  
Hatched July 16 Velvety black a whitish s.d. shade  
comes out centrally defining a series of black  
interssegmental elliptical spots; a row of  
white s-v streaks, darkest at ends. Horns all  
brown black, the club at ends of thoracic ones  
black. Larva can erect or depress forward  
the thoracic armature. Hd. shiny black, labrum  
brown. <sup>(sh hd 1.2)</sup> Horns on thorax 8 very long a. also  
single d. on 12 (See specimen 1894 for details of horns)  
Larva set on upper surface curled J style.  
Molt July 21 Hd dark red brown. v. much more  
pale. w 1.8 mm Horns much as before in  
relative length, including seta; the long horns have  
no club tips but are simply fuscate and  
covered with numerous short branches like  
the short ones. Body colored as before but the  
pale brown shades defining the elliptical  
s.d. black areas have spread to assume  
ground color. Hence, body brown, a d. broken

black line & s.d. row of elliptical spot on  
ant. edge of seg. an oblique line from ant.  
edge of seg. 1 back to base of foot, black, bordered  
below by a fulvous shade. A few lateral black  
mottled patches. Feet & vent. black. Thorax mostly  
shaded with black a red ring at base of  
long horns on 3 & 4. Horns row 0 long on 2-4 &  
single on 12, short on rest. ② moderately long 3-4  
short 2, 5-13. ③ short. ④ 2-6, 12, 13 ant. short.  
Molt July 29 Hd 2.53 higher than wide, shiny  
black. Antennae brown, joint under 2. Long  
horn ① on 2 ①② on 3-4 ① 12 with a thick strong  
white shaft & many short pointed branches  
black or black tipped. Other spines short  
with 5-7 branches pale with black tips  
Body undid brown black d 2-4 on feet  
& in a stripe before spiracle ending above  
a brownish white, slightly oblique s-v  
shade which runs from ant. edge of seg.  
to iv+vr. A reddish shade at base of the long  
horns. Largest horns about 5 mm. Legs very  
long, the tibiae clear seen to the feet.  
Molt Aug 7 (sh hd 2.6) Hd. 4 blackish tan brown  
paler in all the sutures and s. Body blackish  
brown with the oblique s-s fleshy white  
bands bordered above with black. Horns  
pinkish whitish, the ends of the short  
horn-like branches and tips of horns



black. A reddish shade d. between  $\odot$  3-4  
ant. legs reddish except a black outer stripe.  
Large coh solid fleshy with 2 blackish  
bands on each side. Spine black.  
Molt Aug 18 turning green on back. Body light  
green, clouded black on abd, esp. ventrally.  
Bands oblique greenish white shy bands  
edged above black. Spine black. Large black.  
Horns black, the long thoracic  $\odot\odot$  red at  
base. The feet & anal plates (3 large)  
red. Long abd feet reddish with a  
wide black stripe down the outside.  
Hd reddish with a large black patch  
over face of each lobe. w. 6 mm.

Stimulea

542 = 546

Sept 15 1895

Eggs of "Eulimnoides scapha" from Miss Weston (pp.  
Doll's pupae) laid July 10, 1895. [E] Aptical, very  
flat, almost as thin as paper, thus shelled, laid  
in a mass of 50 or more, imbricate in alter-  
nating rows like shingles on a roof, nearly  
and regularly set. Transparent, yellowish,  
clear, the shell covered with neat irregular  
hexagonal, pentagonal or even quadrangular  
reticulate opaque lines; rarely one of these cell  
areas is circular. The lines are narrow, not  
perceptibly raised, but very distinct. Surface  
smooth and level, or a little pitted here-  
tridually from shrinking. <sup>They hatch in 10 days</sup> 1.8 X 1.2 X 0.1 mm

Hatched July 20 Structure of Stimulea (Entirely light  
yellow, no marks. Horns a little whitish)

[D] Diapause with body clear yellow; eye brown; w. 3 mm (calc 2.5) [C] The embryo lies curled on its side, the  
head and tail touching, greatly flattened-lateral  
view. Before hatching it shortens and thickens, the  
egg swells up as as to be much higher than  
before and <sup>the</sup> larva emerges <sup>which it eats out of the shell</sup> through a small hole



-3 -57 9-11

~~Hyd. 3 + 38 (glass)~~

even when culturing setiferous

Eyes in a black spot. Cuticle smooth. <sup>Species</sup>  
Length at hatching 1.3 mm. (Sister still in egg July 21st did not develop all but tail and  
upper leg.) (Hens densely spined with many sharp  
stiff bristles with separate points as in Natura  
Fig. 4 ① on 3-5, 11, 12 longer than others but rather  
shorter conic than before. 6-10 with up & c short  
setae on distal part. ② moderate on 3 & 4,  
smaller on 6-12, the spines not so well developed,  
being less numerous, and some of them like hair.  
S-V spines each distinct arranged as above.  
S-V setae obscure except hind ends. All white  
appears without mottles. Segments distinct.  
Skin smooth with just an indentation

over the (W) P time along sd ridge is defined by black dots inwardly and a black line outwardly or 6-10, the horns become shaded with bluish and the space between them with some transverse lines. This is the next skin forming.

Riff July 27 at first pale greenish, the horns colorless with black spines; a broad white sd band along D 6-10 bordered below by a wavy black line which is faintly interrupted in the incisions 6-7 and 9-10 In d space there are on each segment, 2 transverse pulverulent bluish shades between the tubercles D on ant. 1 post side of each seg. On 3 ant, 6 post, 7 ant and 12 & 13 these bands are absent. These are broken



Aug 9. Length 8 mm. Caterpillar. Aug 11 6 + horn 5. Aug 12 6.5.  
 Aug 13 6.5. Aug 14 7 mm (5 + horn) ~~Aug 16~~ ~~Aug 24~~  
 Length 10 mm. Aug 24. Hd 1.8 mm. Aug 28 14.5 horn 5.5. Aug 29 15.5. ~~Aug 31~~  
 e. b. thin & all as in ant. 546 211. 15 mm. Sept 2 17 mm horn 2.5.

Centrally on 6-10 and are very faint on 11.  
 On 3-5 they are connected by a 2d smoky  
 black line between the horns. There is a  
 granular, uniform, a very little granular  
 in places corresponding to the usual dorsal  
 areas, especially in the intersgmental ~~add~~  
 ones, but very obscure and the areas are  
 practically absent. Length after shedding 2.2  
 width .5 mm (Evidently well bc = 546)

Length 3 mm July 30. ① 5 purplish, 11 less so; on  
 3, 4 and 12 yellowish. Black is more evident  
 rather less so. Aug horn to white sd appears.  
 July 31 sample like 546 but no black, white sd  
 line broken horn less colored than 546, 3 mm  
 Colors very a good deal. A few have brown as black  
 as 546 but none are as black.

(Aug) on back of leaf. Length horn ① 3 = 4, 4 = 5, 5 = 8, 11 = 5, 12 = 3  
 13 = 10, 14 = 12. ② = about .2 stoma on 3, 4 than 6-12.  
 Aug 4 Aug 4 Like 546 211. Color very distinct and dark. The horn  
 ① = 4 & 2 not flesh color but purplish, almost as  
 dark as horn on 11. Also not as dark as horn on 11. ② = about .2 stoma on 3, 4 than 6-12.  
 No. 2 dark not clear, but only color showing through. Spine as  
 to be under skin of horn and reached back Aug 11. Aug 13.  
 and skin and was eating back. Like 546 211. Length 3 mm  
 Hd .7. Aug 13 Length 3.4 mm. Aug 14 4.5 mm. Color yellowish. ② =  
 a small, paired, single next to long horn, at  
 base of horn as indicated a pair of small segments  
 between me and on before. Shaped. Aug 15.5 on back.

Sept 15 21 mm horn 3.2

March 8  
 1897

543 = 527

Eggs from captured *Lycophotus pholus*  
 July 15 1895. Scattered irregularly on the sides  
 of the dish. Probably laid singly on rocks.  
 Adherent. Principal the basal half  
 a bit both well

more flatter  
 rounded; a  
 very good for  
 the surface  
 mal area  
 defined in  
 of the surface  
 in perfect  
 really a good  
 Shimmering  
 Hatched in

July 15 Aug 15 III X 18



in one drum but  
 reticulation but  
 attend in keeping  
 ich are not  
 A simply angles  
 are rather large  
 clear. The egg is  
 a little granular  
 same. 5 mm

black, w. 3 mm  
 Body all white in the horn long, pale. Tubercles  
 conical. Hd to behind, the antenna  
 inky black, mouth  
 brown. Hair long  
 branched, single  
 from small







End of stage III X 10







Aug 9. Length 5 mm eating hide. Aug 11 6+ (horn), 5. Aug 12, 6.3.  
 Aug 13 6.5. Aug 14 7 mm (for shed) Nov 16 Nov 24  
 Length 10 mm, Aug 24. Hd 1.8 mm: Aug 28 14.5 horn 6.5 Aug 29 15, 5.8 Nov 24  
 c. 1/2 things & all as in ant. See 546 VIII 15 mm Sep 12 17 mm horn 2.8  
 Centrally on 6-10 and are very faint on 11.

On 3-5 they are connected by a sd smoky  
 black line between the horns. Then finely  
 granular, uniform, a very little seen  
 in places corresponding to the usual dorsal  
 areas, especially in the intersgmental ~~addorsal~~  
 ones, but very obscure and the areas are  
 practically absent. Length after shedding 2.2  
 width hd .5 mm (Evidently ant. 546)

Length 3 mm July 30. ① 5 purplish, 11 less so; on  
 3, 4 and 12 yellowish. Black as more evident  
 rather less so. Aug 10 to white sd appears.  
 July 31 sample like 546 but no black, white sd  
 line broken horn less colored than 546, 3 mm  
 Colors vary a good deal. A few have horns as dark  
 as 546 but none are as black.

(Aug) on back of body. Length horns ① 3=4, 4=5, 5=8, 11=5, 12=.3  
 13= .35 short; ② = about 2 stoma on 3, 4 than 6-12  
Aug 4 Like 546 IX. Colors very distinct and dense. The horns  
 ① 3 & 12 not flesh color but purplish, almost as  
 dark as horn on 11. Black all spots distinctly marked 2-9  
 No. 2 like not shed yet, but only colors showing through. Spines as  
 to be under skin of horns and are shed hide Aug 4, 11 Aug 5  
 had shed and was eating hide. Like 546 IX exactly. Length 3 mm  
 Hd .7. Aug 6, length 3.4 purplish. Aug 6.5 mm. color pale. Spines 2-9  
 by 2-9. Spines small, paired in single row the long horn, at  
 base of cuticle as indicated of paired addorsal segments  
 interseg. are as before.  shaped. Aug 7.5.5 on back.

Sep 15 2.5 mm horn 3.2

March 8  
 1897

543 = 527

Eggs from captured ♀ *Lycornus phos*  
 July 15 1895. Scattered irregularly on the side  
 of the dish. Probably laid singly on rocks.  
 Adherent. Oblately spheroidal, the basal half  
 more flattened than top one but both well  
 rounded; a little elongated in one diam. but  
 not just perceptible. No true reticulation but  
 the surface is distinctly flattened in hexag-  
 onal areas the edges of which are not  
 defined into elevations but simply angles  
 of the surface. These areas are rather large  
 in proportion to the egg regular. The egg is  
 really a polyhedron. Surface a little granular  
 Shining dark bluish green; diam. .5 mm.

Hatched July 27 Hd bilobed black, w. 3 mm  
 Body all white in the brain long, pale. Tubercles  
 conical. Hd blackish, the suture



inter black, mouth  
 brown. Hair long  
 branched, single  
 from small



concolorous tubercles, vi not seen, tubercles very  
obscure hairs fine, pale except a few of  
the longer d. hairs on 3 & 4, 11, 12 which are  
blackish with black tubercles. Length 1.5 mm

5444

(4227) Egg like Notodonta on Pteris, Jefferson  
Highland, N.H. June 28, 1895. Caudal, base  
flat, apex also a little flattened; white, somewhat  
shiny, opaque  $1 \times .75$  high. Reticulation most  
narrow, not high linear & obscure, irregularly  
hexagonal, the areas between finely dotted-  
punctured. Hatched July 8 White, hd. & c. sh  
black. A skipper. Refused Pteris; ate grass and  
made a house on it, by writing two blades.  
C. sh a narrow transverse line with sd black  
dot. Body all whitish, thick, neck small. Hd  
round, button like, shiny black, the color going  
over into neck. Segs. somewhat unimulate. Setae  
fine, distinct, stiff normal i-v, iv & v in line  
s-v. No trace of 2d hair. On 2 the sd sps con-  
tain 2 setae above the one before apicula ap-  
parently separated from c-sh. 2 setae before  
apicula. 4 on c-sh. On 3-4 normal (I) but ii  
to seems obsolete on 3 small on 4, 9th Hd. 53-  
molt July 16. Body covered thickly with stiff  
short 2d hair from distinct tubercles.



in about 10 transverse rows on indistinct  
annulet. Can see no primary setae. Head  
equally pubescent, reticulate. Hd & cth shiny  
black, cth. very narrow; a-b. spot not black.  
Body whitish a darker tint over dorsum.

Molt July 23 (Sh. Ld.)) Hd round, somewhat shaped and  
dark chocolate brown. Bod greenish white,  
dorsal, dark pilose giving the dorsal region  
a darker shade than s-v. Cth represented  
by a narrow transverse black line <sup>on its post edge</sup> on the under  
of body. Thoracic feet very pale brown.

Later a reddish shade on feet, part of body.  
Molt Aug 4 (H. hd 1.2) Hd same, w. 2  $\pm$  Body reddish  
 greenish white, a reddish shade d. and a faint  
 white sd line. Scarcely final pattern, the  
 gills pale, but the minute tubercles dark  
 giving a fine dotting. S-V region a little  
 more whitish. Cth narrow, pale with  
 blackish posterior border. A cleaner darker  
 d. line, but marks all very faint.

molt Aug 21 (Shed 2.0) Head large, rounded  
densely granular and pilose, dark

horn fading into a paler reddish tint  
over the center of the lobes, black in the  
sutures and post. edge next neck. W.  $3.2 \pm$   
C-sh narrow, transverse, pale testaceous, a black  
post rim. Body with small neck, robust,  
a little flat ventrally, of usual Hesperid  
shape, feet minute, pale brown. Petiole with  
longer hairs from around anal rim. Color  
solid yellowish white, darkened by the  
minute black tubercles of the abundant secondary  
pile. A dark brown d. and lateral line  
with trace of a red in shades and spots.  
Seps indistinct,  $7 \pm$  annulate, each <sup>sep.</sup> shaded with  
faint red, but fainter on post part. Tho. feet pale.  
A small white patch ventrally on 11 & 12.  
The latter bisected - on ant side of sep.  
ate sparingly till Sept 21, then gave a little  
liquid as black I thought it sick. Sept 23  
fell down rather shrunken & torpid but  
turns slowly when handled.



545

Large coal black larva in the road, Jeff H.  
 July 16 1895. Smooth, setae very obscure  
 granular coal black, rather shiny,  
 mounted with range in a d. line 13 post  
 in a stigmatal band, head, but blotchy  
 2-4, represented by spots on iv, just beginning  
 getting smaller and nearly obsolete on 12.  
 Hd bilobed, same coal black, very little  
 under 2 or 4 mm. Length about 40 mm.  
 An orange dot on cervical shield ant.  
 Setae seem arranged as in *Noctuidina*. Head  
 to find but small are at 1st post.

546 = 249

Sept 16

1895

Egg of *Sibine stimulata* from Miss Winton, laid  
 July 8 1895. Elliptical, very flat, laid in an  
 imbricated mass with moderate regularity,  
 shiny, rather dark yellow.  $1.8 \times 1.4 \times .17$   
 broader in proportion to width than "scapha"  
 Reticulation scarcely discernible, round, scarcely  
 at all angular, obscure, linear, irregular.  
 The surface is much more uniform than "scapha"  
 Stage III from Miss Winton (Jul 17) Elliptical, rounded  
 higher through 4-5, diminishing post. Ridges not  
 sharp, all rounded. <sup>sd</sup> processes fleshy, horn  
 like 3, 4, 5 and 11, 12 long, some densely  
 spined; 7, 8, 9 very short, a wart with 3  
 or 4 spine. 13 short, spines; apparently none  
 on 6 and 10 or but a trace of 1 or 2 setae. Lateral  
 rows 3-13, none on 5, moderate, spined, equal  
 those on 3-4 larger especially the one on 4, the 3  
 only a few spines below the 5th one. S-V edge  
 scarcely ridged. Skin chief covered with min-  
 ute spinulose granules, small, quite close  
 set without any tubercular bases, like



\* Are these the primary paired interseg. dorsals  
not yet consolidated?

ordinary skin spines. Color light green, all  
the horns translucent whitish except sd  
on 4 which has a faint vinnus tint, on 5 dark  
purple vinnus and on 11 pale purple. A sd  
curved black line along sd ridge, the pair  
connected by shade streak over the dorsum on  
3-5 & 11 about 2 per seg. leaving square or  
rounded patches of ground color between the pair  
of horns, that on 5 especially round. Sd  
and broken on 6 & 10, and on 7-9 indeed  
absent by a white band. The d. space here  
filled in with a blackish shade which  
forms a square patch. 12-13 and lateral  
region immaculate. Length 3mm, wtd. .5 ±  
shaded with brownish, Δ green, eye black.

Spines tapering sharp pointed, the tip a sep-  
arate piece.

Later d. region more  
yellowish than 5-8, and the d. patches form horn  
flam shaped spots between the horns and blackest  
and feet (i.e. on 5-6 and 10-11) Eat whole leaf

curly (Jul 21 gone on other side of leaf to grass. Eaten by moths  
Jul 23 cur. from below but shed but not present, eaten?  
Like below

17/pt, 8, 9 ant. This whole (black) marks repeated  
small around ① on 6 and 10 that  
small & close to the large horns on  
5 and 11 respectively.

Others from Wm. Winton recd Jul 20. Hds 5 and 2 others shed  
by hide Hds 7 ±. First, like preceding. Shed ones different. See below.  
Eaten ~~as before~~ as before, none defined. Horns densely covered  
with sharp spines. 3 & 4 both ① & ② pale flesh pink 5 and  
11 purple, 12 yellowish, the rest nearly colorless. ① on  
6-10 practically obsolete (represented by 2 or 3 lat. setae in alut.)  
② 6-12 small. S. lat region of 3-5 & d. of 11 purple except  
the small paired greenish-impressed spot and an  
unpaired median yellow oval one on 5 and 11. S. blackest  
on 7-9 blackish, a white side under a curved black  
line. Dorsum ground green yellow d. on 5-6 and 10-11.  
Lateral region whitish. A pair of white oval spots  
between horns ① on 12 & 13. ① on 13 very small. Skin  
densely minutely sparse granular, on the horns  
elongated with sharp spine with round tubercular  
bases. Strongly spines with separate tips as before.  
The impressed areas are smooth, a single d. al-  
ternating with row of ad. dorsal small in interseg-  
mental ones, but all with sd defined edges & the d. line  
obsolete centrally. { ① the 5, horn are in the stage, one just  
(Eaten whole leaf Jul 23 like shed by hide, one has headed. Jul 23.  
Jul 25 still eating, the last not shed. Sample 5.7 mm long. Song on  
back of leaf Jul 26 1906.

Molt July 29 The same, and like mature; Hd. 1 mm  
① on 6-10 still present, rudimentary as before  
no!! an error. Did not molt because molt Jul 30 Hds  
by hide and changed. Horns shorter but the spines  
much longer, ① on 6-10 very much smaller.  
Skin densely covered with skin spines, coarse  
granules of pointed thorns, on the long horns being  
considerably elongated & pointed. S. (sep.) unpaired  
areas absent except on the ad-d small  
pale smooth. Spine elongated scarcely visible  
without lens. Spine smooth, long straight  
enlarging at base with contracted separate  
a few tiny ones on ① 6-10. Sd rounded over  
each of horns proportioned as in next. on  
3-4 flesh color 5 & 11 dark purple brown



between horns  
on 11 & 12

thin color covering 3-5 to ② and 11 to below ① also a round d. patch middle - edged all around with white and along side of black line, then white & black with repeated on 6 & 9 separated from d. patch by a yellow spot. On 5 & 11 a band of flat yellow. 12 with a white oval sd. patch. Rest of area to ② bright yellow green, ① and narrow subventral colorless. A series of lateral indented depressions across small like deep dimples. Length 7 mm. We heard 1.3 ±. Horns ① 12, 13 colorless like ② eating just 30 min. Aug 2 horn on 3 & 4 and larger than the other; length ① 3-4, 4-6, 5-3.0, 11-2.3, 12-1, 13-.5; ② 3, 4, 6-12, all about same length = .6, length of long 9 mm Aug 3, 10.5 mm (subventral under nose, smaller, also under). Now above ② a straight white line separated from green blanket by a dark non-punct line. 5-11 very narrow, no distinct coloration. A trace of white cap below, a little below ② and two of them below of spine. A faint white line along IV+V on 5 & edge. (Note on 13 below horn ①) No trace of any "elevated brown line" on 12-13 (cf 209) Length Aug 4, 12 mm. Aug 5 horn on edge of leaf, length 12 mm and horn 11.5, if not only 9.5 mm. ~~11-12~~ + long photo like spines and all. Same at first except for the longer spines and shorter horns. No "elevated brown line" occur. Aug 8 cat. ~~11-12~~ 13 is wing ①. 11-12 ② and still 11-12 patches on the large horns and adjacent brown shading darker at edges of patches, a tiny d. linear spot on 4 and a round one on 6 and 11, yellow. Green blanket reaches to ②, extends 6-10 and laterally running back below ① ending in a point on 12/ edged with

5 horns 3.5-6 mm

white, and partially within the white a narrow blackish line, narrow in a sd. dash on 6 and 12 and a dusky band along ② central elliptical patch. <sup>then crumpled</sup> brown blackish at the edge, under with white

546 cont

546 VII still 2 headed Aug 24 A.M. at base of ② above on 12 and above ① on 13 also at base and coming between the horns ① on 12 and 13 on account of their position in shape of large, oblong round brown swellings, under these spinulose within.

~~most~~ Aug 24 about 10 A.M. Aug edge of 2 with many setae, also before spinulose. C. sh. a oblong oval with a few punctures on its anterior border, square behind the and corners cut off, 2 mm wide. Hd closely 3.0 mm. Pale greenish, eye black, pins brown, and 3-jointed long tipped by a hair. A fold

note this on 2 horns horn ② moving on. cluster of 4 spines, with other side 3 present. There are no inner side at base. Horn and one spine with smaller base, horn 17 16.3 5.6 ① on 6-10 still represented 1 thin spines. " 18 17.5 5.8 width = head 2.0 mm ± (After eating hide only, horn 4 mm) When 2 headed sides of joint d. sep. and off the glass in center of a large single def. which is now faintly outlined. Also the small ad-ventral appear faint on middle of side.

3.5

4.6

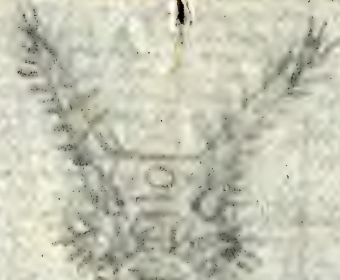
4.8

5.6

5.8



Length	date	mm
Aug 25	19	
" 26	21	
" 27	20.5	
" 28	23	
" 29	22	
" 30	22.7	horn 3.5



542 Stage VII  
max length 11.5

Sept 1. 19 seems stopped eating.

Spun Sept 2

Others on  
willow  
hickory  
myrica

~~Caddisflies present  
in patches on the  
upper side near  
the tip of the central  
horn in 6-11~~

~~(+ 5-) and a few  
among the detachable spines (+ 6)~~

546 cont

546 VII still checked Aug 24 A.M.  
at base of ② above on 12 and above  
① on 13 also at base but coming between  
the horns. ① on 12 and 13 on account of  
their position a shape of horns appear  
round from swelling while horns  
spinulose within.

~~Molted Aug 24 about 10 A.M. Ant  
edge of 2 with many setae also  
before spinulose. C-sh. as oblong  
oval with a few punctures on  
its anterior border, square behind  
the and corners cut off, 2 mm wide.  
Hd closely 3.0 mm. pale greenish,  
eye black just brown, ant 3-jointed  
long tipped by a hair. a fold~~



runs through 2 oblique from  
and corner of each back above  
spiracles. Labial palp small  
with a little fringed lobe on  
inner side. Tarsus has 5-V (IV+V)  
on every joint 3-13 not on 2.

The feet small, clypeus with a  
brown curved line. Several setae  
on surstylus & paracymbia. Setae 3-V  
the latter not different from the 2  
which I call IV+V. (2) represented  
by tiny apices on 6-10 as before.

Length 16 horn ① 2.8 mm

Egg colored in general as before  
but 5-V is brownish purple and  
the color surrounds sd spot on

11-12 hence ground color is purple  
as stated in 249. Horn ① purple  
all shorter than before. (2) "  
3-4 pale brown 6-13. At base  
of (2) 12 above & at base of (1) 13  
above (but (1) 13 lies in lat. line)  
an elliptical area .8 x 1.5 mm  
covered with closely set brown spin  
of a dark & slightly brown. These  
spins have a pale yellowish  
shaft and brown black tip  
and are close set, parallel and  
touching, somewhat the rows  
divided into 2 or 3 groups, more  
usually single.  
Color more purple than before



between hours  
on 11 & 12

the color covering 3-5 to ② and 11 to  
 below ① also a round patch <sup>middle</sup> - <sup>middle</sup>  
 edged all around with white and along  
 side of black line, then white & black marks  
 repeated on 6 esp. separated from d. patch  
 by a yellow spot. On 5 & 11 a round d. spot  
 yellow. 12 with a white oval sd patch.  
 Rest of area to ② bright yellow green, ③  
 and narrow subventer colorless. A  
 series of lateral indented depress. <sup>interseg</sup>  
 small like deep dimples. Length 7 mm (p. 39)  
 W head 1.3 ±. Horns ① 12, 13 colorless like ②  
 (very pale brown. Aug 2 horn on 3 & 11 much longer than the  
 others; lengths ① 3 = 8, 4 = 1.2, 5 = 3.0, 11 = 2.3, 12 = 1, 13 = .5;  
 ② 3, 4, 6-12, all about same length = .65 parts of same green.  
 Aug 3, 10.5 mm (below below another row, smaller,  
 also ~~interseg~~.) Now above ② a straight white line  
 separated from green blanket by a dark confluent  
 line. S-V line narrow, no distinct depression  
 or a series of interseg hollows, a seta below ② and  
 two of them below spiracle. A faint white line  
 along IV+V on S-V edge. (Seta on 13 below horn ①) No  
 trace of any "elevated brown bump" on 12-13 (cf 249)  
 Length Aug 4, 12 mm. Aug 5 gave a scale of leg, length whole  
 and horn 11.5, of body only 9.5 mm.  
 Aug 7 (ate wide spines and all). Same at first except  
 for the large spines and shorter horns. No "elevated  
 brown bump" seen. Aug 8 caterpillar 11 mm.  
 Patches on the large horns and adjacent brown  
 shading darker at edges of patches & a tiny d.  
 linear spot on 4 and a round one on 5 and 11  
 yellow. Green blanket reaches to ②, extending  
 6-10 and laterally running back below ①  
 ending in a point on 12 / edged with

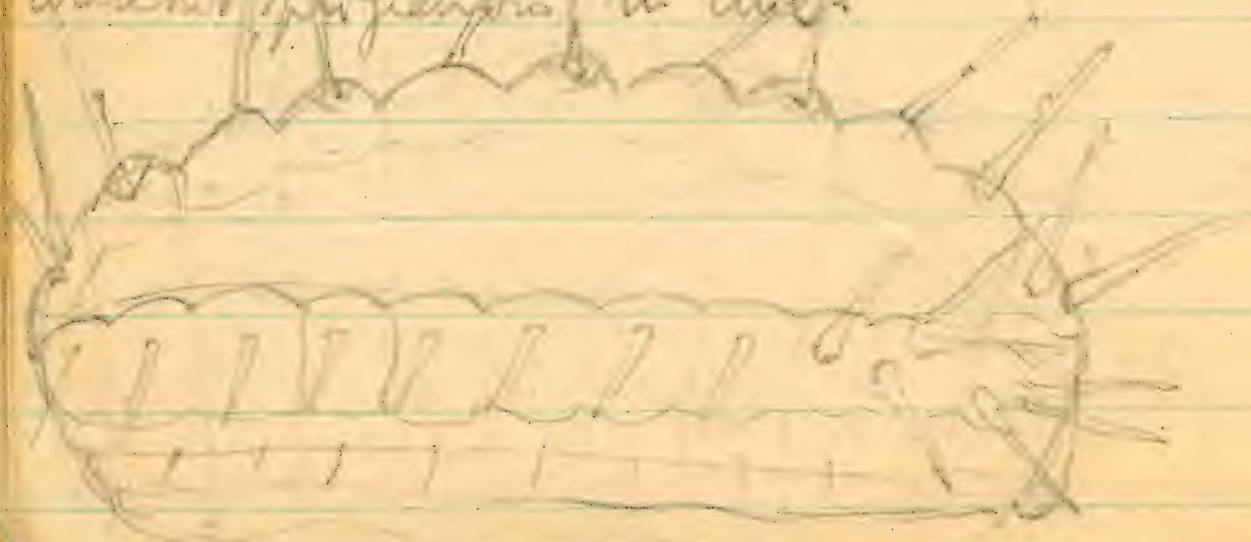
5 hours 3.5-6 min

white and partially within the with a  
narrow bluish line, namely in a s.d. dash  
on 6 and 12 and a dusky band along ②  
Central elliptical patch crimson brown,  
blackish at the edge, <sup>then crimson</sup> mixed with white  
and on the sides by a narrow crimson brown line  
(12 and) on 11-12 a pair of s.d. <sup>small</sup> white spots. Horns  
① ② 34 fleshy, horn ⑤ 5 and 11 purplish brown  
the rest colorless ⑤ 5, 3.5 mm long ① 11, 3 mm. Body  
rounded rectangular in d. aspect, the ends  
larger than the middle, s.d. ridge <sup>8 colorless</sup>  
rounded over, lat. prominent, s.d. space very small,  
depression very small, like rib-dimple, d. ridges  
paired 2 lateral ridges, the lower ant.  
a little all dark tinted. No represent present  
Skin smooth to eye, under 1/2 inch dense curved with  
pointed curved skin spines arising in color  
with ground, elongate on the horns (callosities) and  
forming a patch of black ones below the colorless  
spot on 12. These are not larger than others on the  
last seg. but are the only trace I can find of  
the "elaterated brown" stage. Spines at 11 straight  
and smooth, black tipped, reddish on long horns  
colorless on the shorter ones and ②. W. hol 1.4 ± mm  
(Aug 9 12 mm horn ⑤ 4.5 mm ① 11 5.5 mm ⑤ 5.0 - Aug 10 14 mm ⑤ 5.5  
Aug 11 14.5 mm ⑤ 6.0 mm ① 11 6.0 mm ⑤ 6.0 mm ⑤ 6.0 mm  
width of head 1.4, 2:45 AM. Like 249. Length 13, horn ⑤ 3.5 mm  
[See 249 for everything but "elaterated brown" and length] DATE LENGTH HORN ⑤  
as to this on 12 colorless horn ① not on 13 on one side Aug 14 13 3.5  
a cluster of 4 spines, on the other side 3 present " 15 14 4.6  
represent horns. They are on inner side at base " 16 14.5 4.8  
of horn and are spines with swollen bases, horn ① 17 16.3 5.6  
① on 6-10 still represented by tiny spines. " 18 17.5 5.8  
width of head 2.1 mm ± (after eating, head only, horn 4 mm)  
when 2 headed ends of joint d. sep are on the glandular center of  
a large single sep. which is now faintly outlined. Also the  
small ad-dorsal ap. can faintly be seen on mid-d. segs.



Call. : 28 .39 .54 .75 1.04 1.44 2.0 nat. .72  
 Food .3 .45\* .6\* .75 1.0 1.4 2.0  
 \*from alcohol I make these .4- and .5 full+ They are very small.  
 547 = 210

Larva of *Apoda y. invasa* from Miss Merton  
 in stage I probably. Rounded elliptical, the  
 sd lateral ridges prominent, consisting  
 of segmentary tubercular elevation, causing  
 the d area to form a furrow and the lateral  
 to be concave; ends square, subtruncate.  
 Skin perfectly smooth, shiny, no granules  
 of any kind. *iii* represented by a series of  
 large segmentary spines, on abd. alter-  
 nately bearing in and out but their bases  
 not transposed. The spines have a small  
 knob like projection about the middle  
 and can be traced deep into the skin.  
 Rows on lat. ridge similar but shorter &  
 without projection in line.



whitish, d. green green from food, sd spine  
 dark, blackish, the rest pale. Length  
 1.5 mm. w. bd. .3 mm brown black all over  
 4th & 2 with 3. 8d ridge looks whitish  
<sup>(not counted)</sup>  
*III* 20 after eating. Skin covered sparsely with  
 small clear granules which bear short  
<sup>spine</sup> setae, also some short <sup>spine</sup> setae from the tubercles  
*iii* which consist of 2 setae the whole length  
 of 2d ridge; lateral tubercles with one long  
 and many short setae. Lateral ridge not  
 beyond 5th ridge which bears 2 setae ~~per seg.~~  
 A series of ill defined depressed areas, a  
<sup>(interseg?)</sup> large d and alternating with 2 smaller <sup>(seg?)</sup> d  
 the tubercles on the rounded lateral ridges  
 a single row of lateral impressed areas, the  
 sparse 2' tubercle (with setae) runs of above them  
 S-v finely granular, not setiferous. 4 has a  
 lateral sd seta exactly as figured, from which  
 larva now differs only in having 2 setae whole  
 length of sd ridge instead of only on 3 and 13. 13 has  
 a long lat. seta, but 15 tubercle scarcely larger  
 than the secondary ones. w. bd. .45 mm.



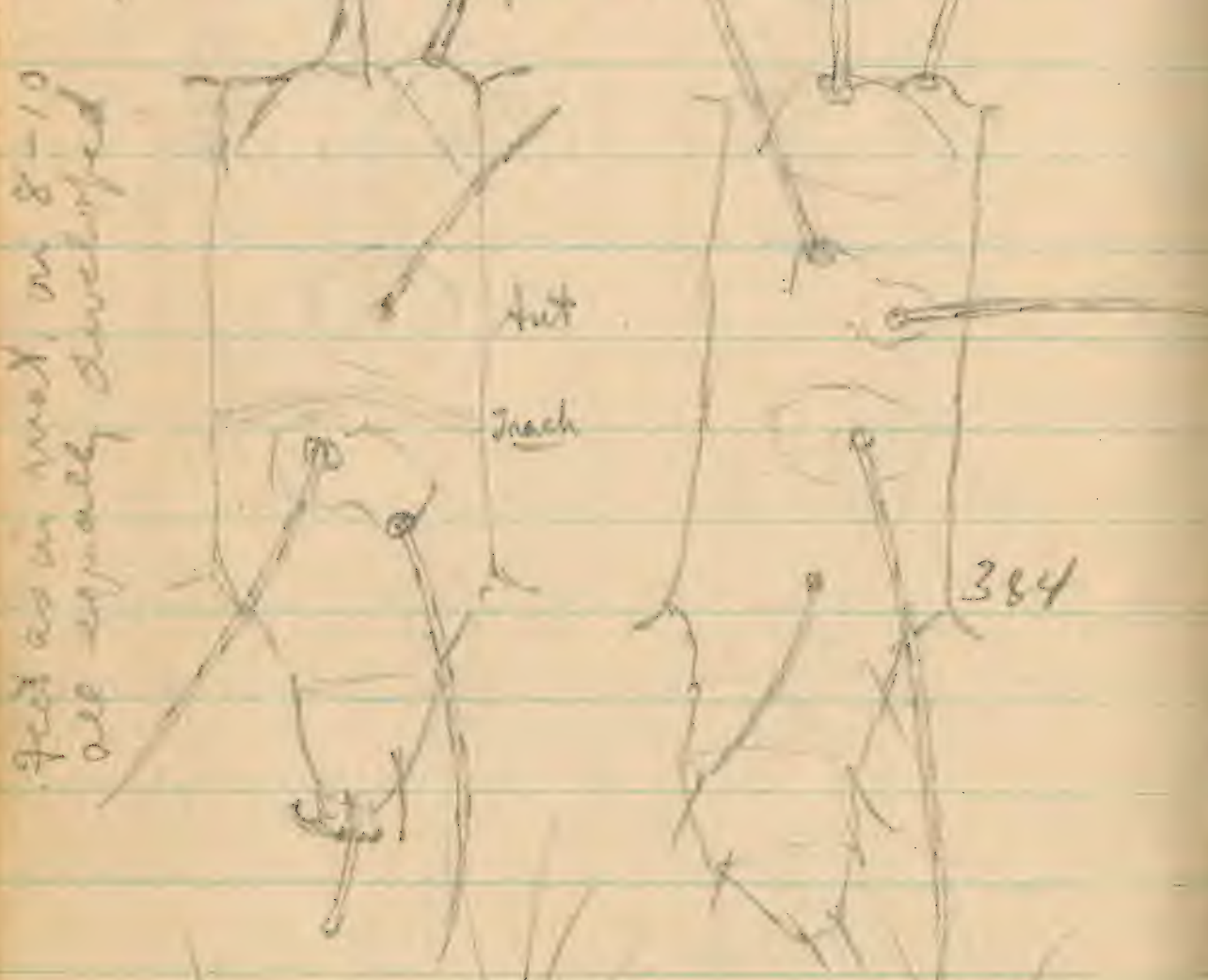




548

Larva of *Arctia cingulata* from Dr. J. H. Chapman at stage I

Feet as in next, on 8-10  
all equally developed



384



Mature from Mr. Emile Boussignies, Paris

549

*Acronycta* on yellowish. July 1895. Hd 2.57. Pale green, white spots on 1-11. 1-11 yellow, the rest greenish. On 3-4 a and line indistinct. 1 d. Warts very few dark d. spots 5-11 with a few shorter. Line 2-11 over. Feet green. Hd 3.74 (Hd 2.57) Hd green below passing above into a whitish green. Warts of lobes orange to a broad space then liquid with dark. Warts a series of slender greenish warts. 1 d. Warts whitish. 1 d. Warts whitish below and a faint d.



Acronycta on yellowish Jeff Highlands N.H.  
 July 9 1895 Hd 2.51 pale green whitish ex-  
 cept on d. a faint brown dotted on face; apex  
 of lobes pale brown. Body green, a yellowish  
 d. line enlarged to a patch on 8 & 12 and  
 brown centered; minute brown d. dots 8-11  
 very small 1-11 yellow the rest greenish  
 on 3-8 a red line instead of d. Hair very  
 few dark d. pale s-v with a few shorter  
 fine 2<sup>d</sup> ones there. Feet green.

Molt July 16 Hd 3.71 (Wld 2.4) Hd green below  
 passing above into a whitish green;  
 patches of lobes orange for a short space  
 above begin with short edge a series of  
 small greenish oblong of light colored  
 much smaller below and with a pair on d.



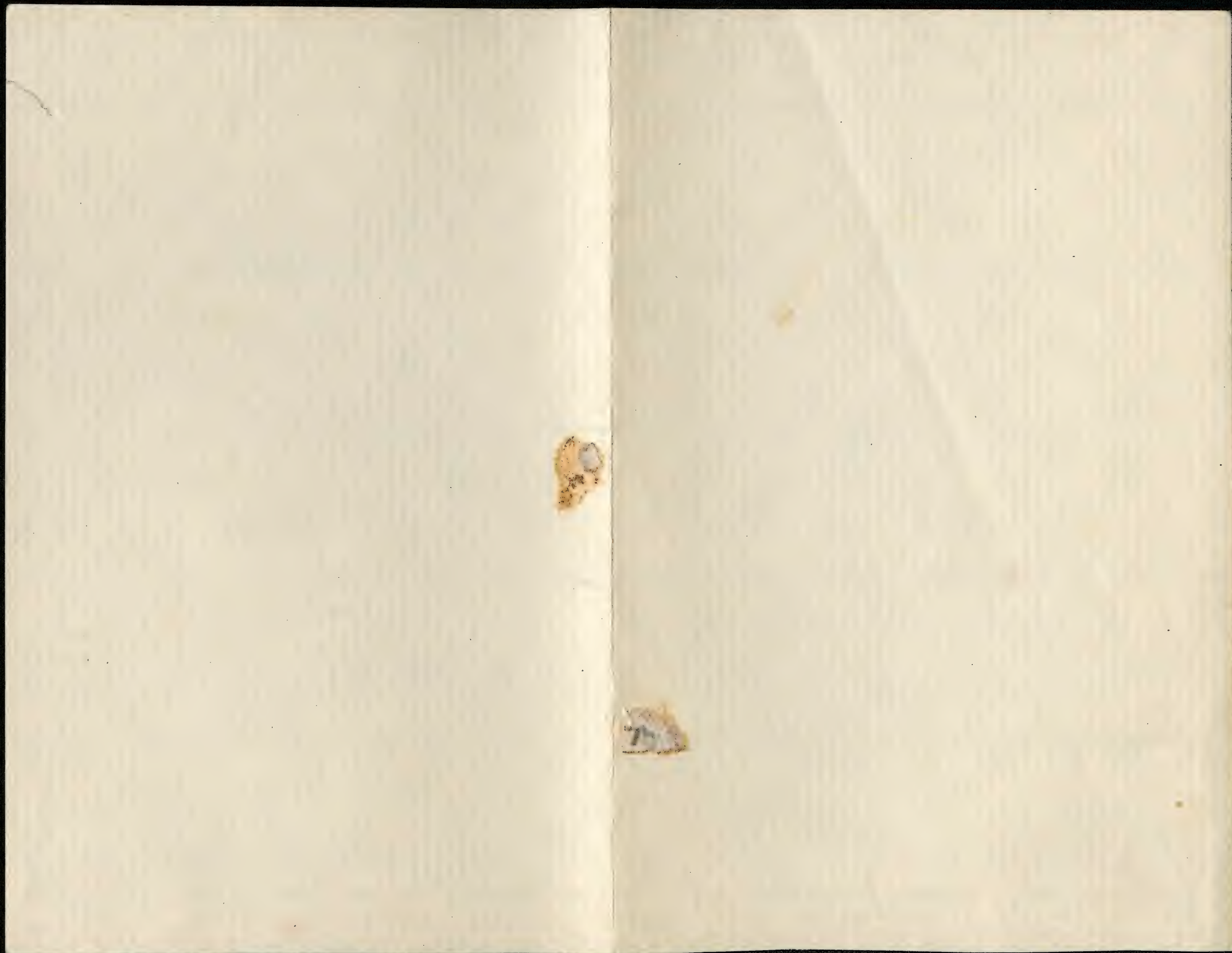
Big bell olivaceous green from minute  
brown-black skin thorns on green ground. No  
marks on stem except fainter traces of pale  
d. line. 5 & 12 a little enlarged, 12 & most  
small, few behind; 151 black but with pale  
tubercles the other most pale greenish. Vents  
all pale & 13 & very small. Hairs short, black  
& white 2d hairs present only 5 & but rather  
abundant there, pale. A few 2d hairs laterally  
Leg plates conspicuous olivaceous  
Gates darker blackish olivaceous from the  
darkening of skin. 2d hairs subventral, abundant  
brown-pale. The white short scattered 2d hairs  
with other tubercles & the pale iii contrast  
no marks.

Evidently = betulae Riley. Blumen.



*Acronycta* or *Aglyptodictis*, got next July 29. Shaded green, went yellow  
a d yellow line faint broken, trace of sd on thorax, all light  
yellow. D. on 5, 8, 9, 11 faint 12 small brown patches surrounded  
with yellow especially at sides. 5 hairs long dark, 11 crown  
9 shorter hairs. 5 & 12 slightly enlarged d. Hd. 1.35-  
Molt July 30 Hd green, prothoracic markings over lobes, apical. Pale  
brown. Body green, went a d line yellow, yellow elliptical  
patches i-ii on 5, 8, 9, 12 with red center; a red dot on 11  
no d line, a trace on 3-4. Hd. 2.2 Skin granular sparse  
with short pale & a few trace of brown. Hairs sparse, only  
a few from. went (Aug) 5 & 8 a little enlarged d, brown dot in  
yellow d line on 4, 6, 7 small. 8, 9 larger, 10, 11 small. d line  
enlarged to enclose i on 8 & 9, & i-ii on 5 and 12. Red green, went  
small yellow, d. line 4-12 trace of 2d on 2-3 (probably = 549)  
Molt Aug 6 Hd pale, black markings, apical orange; Body olivaceous  
i ii black, rest pale, a pale d line, 5 & 12 a little yellow  
tinged. Hairs short coarse, pale & more abundant 5-8  
= reticulata Empty to Aug 12 P.M.







5248

Larva of *Chrysomelidella* from Fr. 7. 8.  
Chapman at stage I

Feet as in max. on 8-10  
all equally developed



Ant

Tars

384



Mature from Mr. Emile Bonis, Paris

549



Eggs of *Lepa crinitata* from Miss Hunter from Mr. Doll's pupae. Elliptical, elongate, flattened above and below,  $1.2 \times .6 \times .5$ , light yellow slightly shining. Surface smooth without mark, very slightly punctured & puffed. Skin thin, easily indented. All greenish white and of moist.

Hatched July 29 yellow like eggs, with



tufts of long white hair mixed with short spin from warts. Feet

as on inst. apparently. Hd. inst. 2. Hair long fine, very spinulose farther, mixed with short stiff spines on ①. Warts appearing as mature larva. Process behind spiracles evident, no hair on it. (Sketch rough) eating  $1/3$  of

*Gregarina punctipennis* look strongly like the egg mass. Warts on 2 small. Only 3 rows seen, none s-v. Hair thin and fine, but long and obscuring body. Molt Aug 3 Same hair more abundant, long white with a few black ones intermixed. The larva

of large warts with a few spines. Body yellowish. Hd pale yellowish, eye black,  $4 \pm$  mm, inst. 2. Warts like inst. but no hair s-v below ③ (= inst. 1) A process behind spiracle on 2 same as on 1st. Molt Aug 10 Same. Hair very long, fluffy white. Body uniform pale yellowish. Warts elongate spinulose papillae. Head .6 or .7 mm (sh. hd. .65 mm)

Molt Aug 19 The long white hair curving all around. Body immaculate as before. A few short black tipped spines from ①. There are a few fine short hair from s-v region below ③ not from definite areas; 2 or 3 a little must and from s-v fold and a cluster of 3 or 4 just above foot. Hair all spinulose.

Inst. 4 head about .8 mm  $\pm$  (sh. hd. .95 mm) only 1/2 of head. Molt Aug 29 Hd  $1.5 \pm$  Body slightly yellowish white hair fluffy; all same. Hd faintly bilobed white above brown then tips & eyes black; below 1 in 2. Warts on open semi-circle on feet 7-10, 13, none on 6 and 11. Length 8 mm with hair 18 mm. Hair look like thread, square ended.

Molt Sept 4 Hd.  $2 \pm$  Same. Length 12-13 mm. Molt Sept 11 Last stage, hair dark gray ① and ② light reddish except at



base. Body all white; process behind  
 spiracles distinct. In the incision  
 laterally is a sort of gland like thing  
 or space folded around by the segments  
 (See blow larvae) Sept 12 18 mm  
 Spun Sept 23

(Cat. no. 11592) <sup>537</sup> *plagiata*  
 Eggs of *Parorgyia leucophaea* = 486-36 Jefferson  
 Highlands, N.H. laid July 6-7. Cylindrical  
 spherical, flattened above and hollowed  
 in a cup shape at micropyle. White with  
 a greenish tint at first which disappears  
 a dark shade in hollow. W. 8 height 6  
 Reticulation found by the edges of rows,  
 shallow depressions, irregularly all defined  
 diffuse & rounded hexagonal. At micropyle  
 a single row of narrow prismatic wedge  
 shaped cells. Laid in patches of few to 25  
 stuck by a clear gummy forth which fills  
 up interstices between eggs near to the top  
 Hatched July 21. Whitish at first like little *Oxyia*  
 Hd and warts black. Body corded whitish



Hair abundant  
 all simple, several  
 from a wart fine  
 and rather long  
 dark & light mixed. W. hd. .4 ± sd on 2 large.  
 On 9 & 10 much smaller, large ones on 5-8



Lateral volute patch d on 4 and 9.

Molt July 30 Hd black, body gray, red tubercles present, whitish. Dorsal hairs esp. lat. where the hair are long & white forming a dense halo around larva. Surface visible d. a few short plumed dark gray hair sd on 2 d on 5, 6 & 12; 3-4 & 9 white d esp. 9 which has a large white spot on ii & iii. Most otherwise gray. Hair first tubuled the long lateral ones feathery. A few very long simple black hair feet.

Molt Aug 6-7 Hd shiny black. 5-7, 12 black tufted, s-v hair long thick white, with a series of simple plumed black lateral hairs varying in distinctness in different larvae, in some very evident. Long slender pencil sd on 2. Body dark, other hairs gray. Some of the d ones plumed, when white appearing 'mouldy'. Red tubercles faintly reddish. A lat white line. Brush tufts 5-6 black, not round or small.

ones on 7-8 gray or only on 7. (= 486 g.v.) White sd distinct 9-10, trace of lat, s-v near whole length. Red tub. red. The majority are without the plumed side tufts.

Molt Aug 13 Pencils before & behind, plumed hair on the side distinct; 3 black tufts and no on 12; red tub. red. Side plumes from ⑤, 2 on joint 4-5, one from the rest none from ③ (in this example) Tufts 5-6 black 7 partly black, 8 no tuft mostly mouldy white. Otherwise as in 486 IV g.v. Side plumes vary, not the same on two sides of same larva.

One had pl. hairs only 5-8. Another only a single plumed hair from iii on 5, none from v (in previous stage none at all)

Molt Aug 25 Head black, body black, a faint s-v white line. Pencils on 2 & slight on 13 with tufts 5-6 black. 6 may be partly mouldy white. Tufts 7-8 and 11 whole length mouldy white, iii short bristly whitish, v-vi long, dense feathered white but not 'mouldy'. Square tuft 12 black - a hairless space around reddish red tub. None or a whole row of black plume hair on sides Hyl.



Apophallid with antenna-like tubercle on  
head walk to J, Jefferson Highlands. July 28 1895.  
Processes in 3 rows (one dorsal), short, cone  
white with black hairs, a single long  
sd pair on 2, flexible, white at base  
the rest black, hairy, a little club shaped  
no processes on head, only the sd pair on 2  
and only 2 rows on 3-4. Body dull  
pale yellow with a series of sd colored black  
blotches, a narrow white ss line along

③. (Spun button July 28)

Imago Aug. 9 1895

*Agynnis myrina*

Larva I style on upper side of maple leaf  
Jeff. Highlands July 27 1895. Hd light  
lobed whitish spotted with brown dots.

553

W 18 v

Little Apatela on maple, Bellefontaine  
Stages, L. J. July 9 1896

Head .87 I on under side pointing  
Hd lobed, high, pale yellowish  
whitish opaque dotted; setae coarse  
then I Body greenish, pale s-v, with  
round knob like, i-ii large  
rather pale yellow, iv-vi small  
are ob greenish; hair fine, coarse, white  
on 3-4 segs slightly annulate, faintly  
concolorously streaked trans.  
a darker whitish d line

[Hd 1.6 red streaked like anal.]  
Head July 11 Hd 2.8

Calc. 28 .45 .69 1.1 1.76 2.8  
Food 4 .7 1.2 1.8 2.8

Molt Hd 4 lobed; all larva whitish and  
marks very conspicuous. Hd  
several fine a line, white, next a  
green, rather stuffy short erect  
L 1 or 2 small orange flosses, common at

the ends. In d space a round sd spot  
black point, edged with crimson, 3rd band  
faintly continued d, crimson but a spot less  
faint than the 2 central ones but colored



*Leptis Apatelae* on maple (Bellport)  
 L. J. July 9 1896

Hol. 8.7.1 on under side pinning  
 Hd bilobed, high, pale yellowish  
 more opaque dotted; setae coarse  
 bristly, greenish. Spal. 2-v. vent  
 round, knob-like, i-iii large  
 pale yellow, iv-vi small  
 greenish; hair fine, coarse, white  
 some of the d. and blackish.  
 segs slightly irregular. (airing)  
 chocolate only streaked brown.  
 a broken whitish d. line

[Hd 1.6 red streaked / later anal.]  
 head 7.1.10 Hd 2.6. ✓ v63

Caul.	28	.45	.69	1.1	1.76	2.8
Found	4	.7	1.2	1.8	2.8	

Hd. 4 bilobed. all larva whitish and  
 more or less concolorous. Holm  
 several from a sand, white, not a  
 green, rather stuffy, but except  
 from the white some of over dark



Egg solitary on leaf per side of leaf  
circumfer.  $\frac{1}{2}$  in. height .25 in.

80% Hatched around margin **A**  
Ribs first weak at summit,  
gradually even toward ribs  
reticulate confluent toward  
apex strongly, rapidly in  
granular, irregular coarse  
irregularly scabrous to green,  
the upper part reddish brown  
on thickly as only leave  
rings of light green spots.

Hatched July 3 Hd whitish .3 mm  
Body greenish green part, granular  
setae long from base, do not dark  
singles i-v as scutellidae, on thorax  
the normal tubercles large whitish  
by small white hairy long fluffy setae. 100.45

Hd 1.2 Whitish, a vinous brown streak  
below joint reaching in. Setae folded  
acuminate, more whitish on folds. i-iii  
reddish. Hd part brown scutellid above  
in mouth pale. white



532

Myrmecophilid with antenna-like tubercle on  
head walk to J, Jefferson Highlands, July 28 1895.  
Processes in 3 rows (no dorsal), short cone  
white with black hairs. A single long  
5th pair on 2, flexible, white at base  
then black, hairy, a little club shaped  
no processes on head, only the 5th pair on 2  
and only 2 rows on 3-4. Body dull  
purplish with a series of 2d chest black  
blotches, a narrow white ss line along

③. (Spun button July 25)

Imago Aug. 9 1895

*Myrmica myrmica*

dissected  
P. 361 x

533

Larva 5th style on upper side of maple leaf  
Jeff. Highlands 9th July 27 1895. Hd slightly  
beaked whitish mottled with brown dots.  
w 1.8 mm. Body whitish with 4 wine red trans.  
stripes per seg iii-iii, distinct between ii & iii  
faint dorsally. Warts i-iii pale orange, the rest  
whitish concolorous with body. Wart ii smaller  
than i, iv & v small, with 3-10 hairs. Hairs  
rather long pale, except from i & ii where they  
are shorter and dark. No secondary spines  
on 3-4 as in *Archaeus*. The second stripe, (be-



tween i) d. is con-  
verted into a  
rounded spot

molt July 28 Same Hd 2.5 The 2nd bands  
running from i to iii are black cut  
by 1 or 2 little white dashes, crimson at  
the ends. In d. space a round 2d d. spot  
black faintly edged with crimson. 3rd band  
faintly continued d., various but a few hairs  
fainter than the 2 central ones but colored



the same, faint brown shading into black  
 red. Hair i ii short bristly orange, iii-vi  
 long white. Body yellowish waxy white  
 white i-iii pale orange, rest concolorous  
 no 2<sup>nd</sup> series. Skin points minute rather  
 sparse a little longer in round and d spots  
 later dorsal has a dark shade contrasting  
 with yellowish 3-v.

Spun Aug 7 a cocoon of chewed up leaves  
 and silk like spatula oblong etc  
 Oct May 21 1897 A. dissoclet Cal no 12750

Call  
 I 1.2-1.7  
 II 1.7-2.4  
 III 2.4-3.5  
 IV 3.5-4.9

V 4.9-7.7  
 VI 7.7-11  
 VII 11-15.5

$$554 = 244 = 4$$

Same Scapha from Union Norton, recd July 29 1891  
 Egg (shells) solitary on upper surface of leaf. Elliptical  
 quite flat 1.8 x 1.2. The skin very thin, white  
 and fine. Scapha eggs from Doll

reared at Hatching July 18 1896

the surface Broadly elliptical, flat  
 1.7 x 1.4 x .1 mm

Stage Hd. 3 Retraculation reaction distinct

① and ② giving a fine granular

texture under lens

Color as usual, meaning

transparent with a slight

pale yellow tint on glass

more frequent & prominent

of scutellum but not darker

colored.

Hd. 25+ pale eyes black

Egg swells up well before

hatching larva straight

thickened till straight

the angular turn

of surface and

the tubercles. 2 light

spines below arms

(could not see whether



Scapha eggs from Doll

Hatching July 18 1896

Broadly elliptical, flat

$1.7 \times 1.4 \times .1$  mm

Reticulation rather distinct

giving a fine granular

texture under lens

Color as usual, newly

transparent with a slight

yellow tint on glass

was opaque & granular

of early stage but now darker

colored.

H. 21 & pale eye black

of mouth of well before

hatching larva showed a

hooked bill straight,



Still on its side

Hatched length 1.0 as drawn



Skin fine  
Shagreened  
Horn wrinkled  
at rim where  
setae emerge



Setae subspinulosa smooth  
pointed. Intercap paired  
Gendules lots represent  
plates



the same, faint green shading into black  
 red. Hair i ii short bristly orange, iii-vi  
 long white. Body yellowish waxy white  
 white i-iii pale orange, rest inconspicuous  
 No 2 hairs. Skin points minute rather  
 sparse a little larger in round w-d of spots  
 Later dorsum has a dark shade contrasting  
 with yellowish 3-v.

Spun Aug 7 a cocoon of chermid. w. leaves  
 and silks like spatula obliqua etc  
 Oct May 21 1897 a dissection Cal no 12750

Call

I 1.2-1.7

II 1.7-2.4

III 2.4-3.5

IV 3.5-4.9

V 4.9-7.7

VI 7.7-11

VII 11-15.5

554 = 244 = 4

True Ocapha from Univ. Winton, recd July 29 1895

Egg (shells) solitary on upper surface of leaf. Elliptical  
 quite flat, 1.8 x 1.2 the skin very thin, white  
 and iridescent. Reticulation rounded, obscure  
 scarcely apparent of each other, or sometimes angular

the surface a little shagreened. as usual

Stage Hd. 3 length 1 mm. (dead & rather shrunken)

① and ② each large bifid tubercles with 2 stiff  
 (shape as in most a little less angled)  
 setae. Dorsum broad flat. Skin perfectly smooth

only hollowed a little

by the ridges & segments

yellowish white with

an irregular brown

band along each

side ridge. Ridges

only distinguishable by

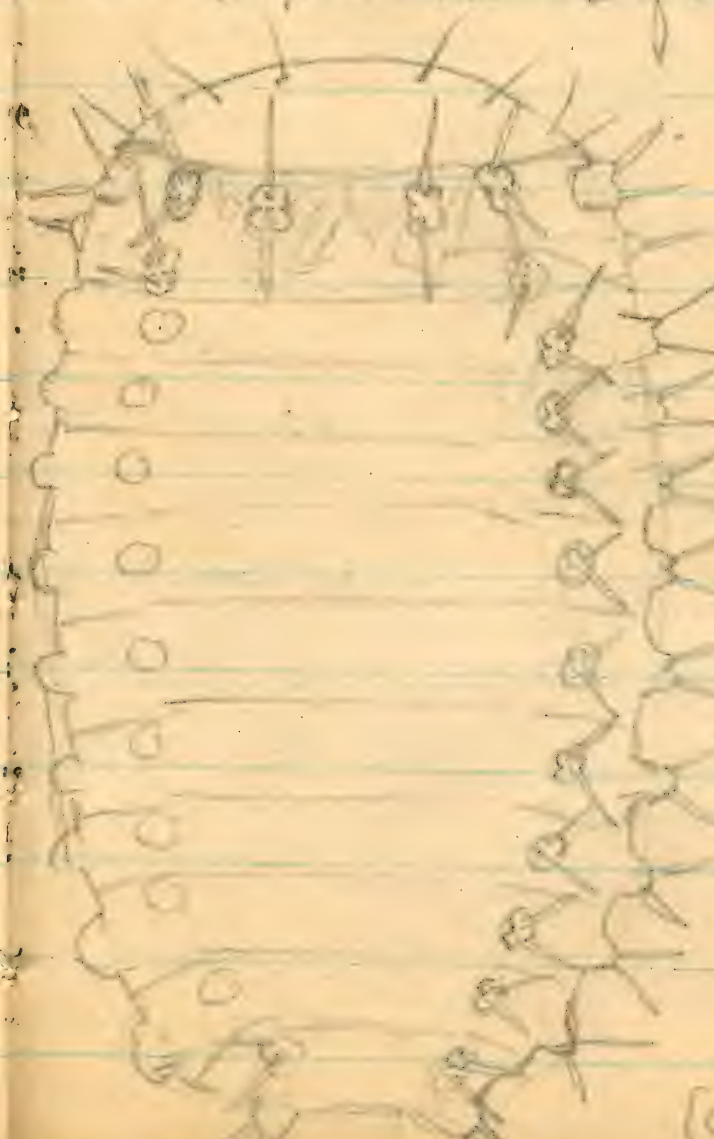
the angular turn

of surface and

the tubercles. 2 light

spines below arms

(could not see whether






These may be another  
tubercles in 3-4 regions.

(see alcohol)

384 are closely appressed and 13 is divided into  
2 segs, or all three 5 tubercles are in 3, 4 like  
5 and 13 has no more tubercles than others.  
Lateral space very narrow at least in dist. seg.

Stage II <sup>Aug 2-2 Aug 3-3 Aug 4-4 Aug 5-5</sup> Length 1.5-1.7 Shape as before. Lateral  
space great

 Tubercles, about  
about 10 and 10  
protruding on the  
same ridge, the whole side area

composed of elongated s-v converging but are  
ridge (s-d) with broad d. & side spaces.  
rows of double setae on tubercles from the ridge  
with additional ones at the ends. Tubercles  
and setae smaller in proportion than before  
but similar. Body elliptical, pointed more  
behind than before, 2 flat, a little curved  
side very 1. in center almost square, quadrilateral  
in longitudinal aspect, d a little anterior.

Pale yellowish a head dark band along upper  
side of ridge\* connected at ends and also  
by a bar in center of body. Skin smooth

depressed in gentle hollow, d. interseg and ad  
seg and on segs. Bases of tubercles wrinkled  
subgranular. Lateral (s-v) skin also  
smooth with 2 rows of faint depression the  
upper apparent the interstigmatal row.

[\*] aspect, above upper ridge; lat aspect below  
lower part of ridge but when seen double.

Evident well below the ridge, seen by transp.

Venter more clean yellow than body. Head pale

Stage III <sup>Aug 5-5</sup> Length 2.4 mm change to mature  
structure. Tubercles absent, a single trans  
side represents each s-d ridge rounded

prominent. Dorsum hollowed, sides 1. Skin  
obscure granular or reticulate. The markings  
occure elevated\* depressed areas irregular  
sculptured, shapeless creased, regular the dorsal  
elongate hexagonal (trans) large, ad-d. small  
rounded, the lateral ridges very narrow,  
almost linear. Areas not much depressed  
Sides hollowed below the round bulging ridge  
which shows a row of round clear areas  
on lower aspect. Shiny granular, without  
well defined sculpturing, some hexagonal  
areas just indicated. Color greenish the ridge  
broad brown with connecting band as before  
at the highest part of dorsum. (on a trans.  
lateral ridge) The body is a little angled at  
seg. joint in the transverse from band highest the

(Eating July 31. 3 mm, 2 stage II, 1 just shed, shiny shed smooth, 1 stage II eating)  
Aug 3 Dorsum largely appressed with brown. Length 2.7 mm. other 2.4 mm  
except on the plate 3-4. So best where the trans band was.

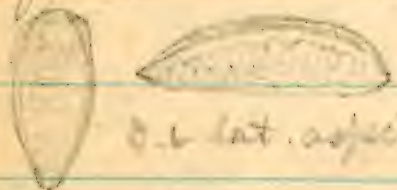
(Aug 4 by me 3 mm, seems still to shed; other are 2.7 eating.  
Aug 5 other are shed in brown & dorsum fine lat. band green  
just the plate 3-4 also shed. Length 2.8 mm. Aug 6 the shed lat  
3 mm and 2.7 mm) The granules are flattened, occur  
contiguous, not really overlapping but suggesting  
scales especially before head & filled out V

Side depression obscure, upper pentagonal, close to  
ridge, lower smaller, a little post. rounded and  
rather smooth. Spinacles very obscure, alternating  
with tops of the lower row.

IV Aug 7th, 1 mm. has shed 1 outer hide, length 3.4 mm  
very much as before, but the depressed areas of plate are  
better defined. Large almost contiguous, still  
somewhat depressed, irregularly shaped, the  
narrow lateral ridges and especially the high  
bulging rounded s-d ridge distinctly scaled. The  
dorsal plate has a faint character as seen  
by a central line and 2 granular areas on each  
side. The scaling seems really overlapping, at



least it has that appearance ~~with~~ lapping from below upward, the reverse of shingle. the scales form rounded arcs, about  $\frac{1}{2}$  circles. On the sides the plates are separated, not very distinctly rounded, and the lower s-v alternating with a small s series, segmental, just above s-v edge. Lateral ridge scales is above. Spines quite distinct now. Larva with d. e lat area sunken. ridges prominent rounded, all smooth; ellip. dorsal, separate and, tail



obtusely pointed, evenly arching to tail. Coloration as before at first. March head 7.3 Aug 8, 3.6 AM Body becoming a little humped, in the s-d ridge at 7-8, a single hump intersag. Length 4 mm then are 3.5 mm Aug 9, 4.3 3.7 [little are III 3.2 the brown shades spread out fine s-d line covering half down ant. 4 tail but less so part. as in this figure (length no 1 4 mm



appearance of no 1, sample no 2 Stage II appearance of no 3 Stage III appearance of no 4

Aug 9 AM.	{	"	1	4.7
		"	2	3.4
Aug 10 "	{	" (to shed)	3	3.0
		"	1	4.5
		"	2	4.3
Aug 11 "	{	" (to shed)	3	3.0
		"	1	4.5
		"	2	4.3
Aug 12 "	{	" (to shed)	3	3.4
		"	1	4.5
		"	2	4.3

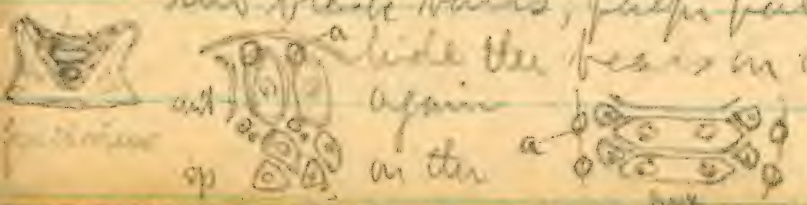
No 1 (Aug 10) Back evenly dark red brown, the pigmentation under the skin so that the ridge looks clean from dorsal view, from fine side view the fine d. plate greenish centered the other with greenish granulate ad. dorsal glandular spots (further in than the s-d depression which are almost 1-d in the sp. in account of wide dorsum) a clearer spot in the ridge opposite 8th plate. Sides pale green. No 2 Back also all brown plate 1 obscure, paler plate 6-8 are also a little pale but the whole back is very uniform, almost the no 1 now.

No 3 (Stage III 2-headed) Plates 1-3 much paler, plate 5-9 covered by a broad pale patch which widens out beyond the plates on 6-7 forming a rounded pale spot produced behind narrowly. Hd pale eyes pure blackish (no sample on back of Aug 10 P.M. most Aug 13, cutting back the side which stands up stiff with all the plates on it distinct. ridge with a series of curves interspersed heads. These show even in Aug 14 plate 1-4 before spiracles, later with the ridge 1-4 making 4 rows on the sides (s-v series). Length on molting 4.5 mm. App V as just as before, dorsal red brown spots 3 first plate which is paler, sides green. Ridge slightly humped at 7-8 and darker brown there, a faint whitish spot at 10-11 (as in next larva = "opposite 8th plate"). Plates hollowed-depressed <sup>shagreened</sup> a white granulate plate in center, add with single row (showing in hole). Lateral plates less well defined more rounded, upper s-v large lower s-v rounded, the lining ant. superior (superiorly visible when looked for, the small ones (sep.) above s-v edge distinct. Ventrals all same as before. Tail shorted, blunt pointed

Lengths.		March head 1.1 mm	Diagram of the side plates.
Aug 13 AM	{ Stage II 4.5		
	{ 2 to shed 4.3		
	{ 3 stage II 3.8		
Aug 14 "	{ 1 eating 4.4		
	{ 2 shed (V) 4.6		
	{ 3 eating 4.0		
Aug 15 "	{ 1 V 5.7		
	{ 2 V 5.3		
	{ 3 IV 4.6		
Aug 16 "	{ 1 6.3		
	{ 2 5.8		
	{ 3 4.9		
Aug 17 "	{ 1 2.6		
	{ 2 (to shed) 6.3		
	{ 3 4.7		
Aug 18 "	{ 1 6.5		
	{ 2 6.5		
	{ 3 to shed 4.7		

Side dark green. In Stage IV pale whitish green. No 3 shed into V Aug 18 P.M.

No 4 Aug 21 AM Hd greenish white, eye black, jaws brown with two black bands, palpi pale; w. 1.2 mm. In this side the bears in side of ridge (a) show again. I do not see these on the larva. All same





as in previous stage. Length 6.5 mm (eating buds)  
 Setae present, very fine. Plate shaped, scarcely  
 distinct, ridges well scaled. D. plate are divided  
 by a slight dorsal raised line. Hump on 7-8 quite  
 well marked tail round pointed. Shape of mouth & labia  
 lateral plate well marked, upper s-v with distinct  
 glandular centers. Spiracles round, yellowish with  
 dark center. Thorax creamy brown, the ridge above  
 all the d. latticed lines and a narrow  
 d. line on plates 2-8 dark brown; hump  
 off plate 5 very dark. Glandular center  
 of plate also dark. A white spot in  
 ridge at plate 8 and a little one  
 at plate 7 seen best from side. Side  
 plate 1 (not) and 3 and dark leaf green  
 glandular centers of upper s-v dark.  
 Seg. on ridge from side view a row of  
 dark round arcuate spots which  
 probably are the heads of lice and in  
 No 2 a row of droops of clear fluid stood  
 just there but disappeared later.  
 No 2 back all brown, (white to grey) No 3 plate green also a  
 yellowish green cross of a d. plate but through plate 6 and 7 to  
 on the latticed ridge between 6 & 7 (joint 9). A dark brown  
 shade from hump, across plate 5. One white spot.  
 Aug 28 No 1 is shed? on cover but not eating (no sign) Dec 29  
 No 2 VI Aug 30 Aug 31 10.6 Same as before in shape and  
 fine setae. Color same. Borne of ridges a little  
 marked with plate, 8 plates more of a creamy  
 brown, a small sd white spot (6-7) and 9-10  
 beside the anal ring are 10-11. Setae are  
 on both sides of the ridge representing ① and ②  
 width of head 1.8 mm ± (a head)

3 from Sept 10. Last stage seems to have no  
 differential character from the previous  
 ones. Facet length of couple 13.1 mm

1	2	3	4	5
Pinus	Pinus	Pinus	Pinus	Pinus

# One with 1 pair and spines

Sh	Jul 27	2.8	1. and 1 pair
Ca	" 28	5.6	1. and 1 pair
"	" 29	5.6	1. and 1 pair
"	" 30	5.6	1. and 1 pair
"	" 31	5.6	1. and 1 pair
"	Aug 1	5.6	1. and 1 pair
"	Jul 5	2.3	1. and 1 pair
"	" 6	2.7	1. and 1 pair
"	" 7	3.5	1. and 1 pair
"	" 8	3.3	1. and 1 pair
"	" 9	3.0	1. and 1 pair
"	" 10	3.9	1. and 1 pair
"	" 11	4.5	1. and 1 pair
"	" 12	5.5	1. and 1 pair
"	" 13	5.3	1. and 1 pair
"	" 14	5.5	1. and 1 pair
"	" 15	7.4	1. and 1 pair
"	" 16	8.0	1. and 1 pair
"	" 17	7.5	1. and 1 pair
"	" 18	"	1. and 1 pair
"	" 19	"	1. and 1 pair
"	" 20	7.8	1. and 1 pair
"	" 21	9	1. and 1 pair
"	" 22	10	1. and 1 pair
"	" 23	9.5	1. and 1 pair
"	" 24	"	1. and 1 pair
"	" 25	"	1. and 1 pair
"	" 26	"	1. and 1 pair
"	" 27	7.5	1. and 1 pair



561A? *Fiery elliotii*  
Mariana

July 5 1896 Hd. 4 pal III?  
yellowish eye black mouth

- July 5 2.3 with III brown. All green  
" 6 2.7 " gray whitish with  
" 7 3.5 " a faint yellowish  
" 8 3.3 to shed inf green from food  
" 9 3.0 " (1) 3-5 8, 11-12 alike  
" 10 3.9 eating IV very large with many  
" 11 4.5 " black spine; 13 small  
" 12 5.5 " others very small with  
" 13 5.3 to shed few spine. (2) under all  
" 14 5.5 eating about alike with pale  
" 15 7.5 " spine. Later large  
" 16 8.0 " horns faintly yellowish  
" 17 7.5 to shed spines & 5 up out of line.  
" 18 " " 9 & 9 horns very black  
" 19 " " Stage V 9 Long horns thick  
" 20 7.8 Stage VI with long dark spine.  
" 21 9 eating Code colorless whitish.  
" 22 10 " Hd. 5" eye black mouth brown  
" 23 9.5 still Spine fine & densely  
" 24 " to shed velvety granular. July 10  
" 25 " " all the long horns pretty  
" 26 " " crimson tinted. Body green  
" 27 9.5 shed from food, broken pale & line



Segments very distinct. D  
 6 ad d depression small, no  
 perceptible center. 2 interseg  
 tent. whitish dots like Ender  
 faint whitish sd line indi-  
 cated at bases of long horns  
 Hd 5± whitish, eye black mouth brown  
July 14 Same, the parotid lines  
 along ridge are red like the long  
 horns. Spines long, black. Whitish  
 line mostly continuous. Paint white  
 esp. pale glandular dots. Also a  
 lateral row. Skin rather closely  
 watery granular, the granules irregular  
 coarse. A few calli on top the  
 side horns esp. anteriorly. Hd 7±  
 Sugar Dsp. 1 up part 2 of lat filled in  
 with dull oxid green. 2 faint curved white  
 line from rings around the glandular dots  
 on the sides. These line being the lower  
 upper edges of dark green obscure space  
 below ① and above ② resp. white line  
 very ②. some whitish pigment patches  
 numerous glandular dots on d. sp.  
 defining obscure dark green highest part  
 to d line and above ②  
 July 16 ② faint red. D. green dark space in  
 showing into blackish. good calli ③ ④ ⑤ ⑥ ⑦ ⑧  
 Sh. July 20 A rusty color good calli ③ ④ ⑤ ⑥ ⑦ ⑧  
 D line spots white pigment patches purplish  
 line all present confluent shaded blackish  
 Setae paleish line dorsal white line  
 Setae paleish ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒ ㉓ ㉔ ㉕ ㉖ ㉗ ㉘ ㉙ ㉚ ㉛ ㉜ ㉝ ㉞ ㉟ ㊱ ㊲ ㊳ ㊴ ㊵ ㊶ ㊷ ㊸ ㊹ ㊺ ㊻ ㊼ ㊽ ㊾ ㊿ ㏀ ㏁ ㏂ ㏃ ㏄ ㏅ ㏆ ㏇ ㏈ ㏉ ㏊ ㏋ ㏌ ㏍ ㏎ ㏏ ㏐ ㏑ ㏒ ㏓ ㏔ ㏕ ㏖ ㏗ ㏘ ㏙ ㏚ ㏛ ㏜ ㏝ ㏞ ㏟ ㏠ ㏡ ㏢ ㏣ ㏤ ㏥ ㏦ ㏧ ㏨ ㏩ ㏪ ㏫ ㏬ ㏭ ㏮ ㏯ ㏰ ㏱ ㏲ ㏳ ㏴ ㏵ ㏶ ㏷ ㏸ ㏹ ㏺ ㏻ ㏼ ㏽ ㏾ ㏿ 㐀 㐁 㐂 㐃 㐄 㐅 㐆 㐇 㐈 㐉 㐊 㐋 㐌 㐍 㐎 㐏 㐐 㐑 㐒 㐓 㐔 㐕 㐖 㐗 㐘 㐙 㐚 㐛 㐜 㐝 㐞 㐟 㐠 㐡 㐢 㐣 㐤 㐥 㐦 㐧 㐨 㐩 㐪 㐫 㐬 㐭 㐮 㐯 㐰 㐱 㐲 㐳 㐴 㐵 㐶 㐷 㐸 㐹 㐺 㐻 㐼 㐽 㐾 㐿 㑀 㑁 㑂 㑃 㑄 㑅 㑆 㑇 㑈 㑉 㑊 㑋 㑌 㑍 㑎 㑏 㑐 㑑 㑒 㑓 㑔 㑕 㑖 㑗 㑘 㑙 㑚 㑛 㑜 㑝 㑞 㑟 㑠 㑡 㑢 㑣 㑤 㑥 㑦 㑧 㑨 㑩 㑪 㑫 㑬 㑭 㑮 㑯 㑰 㑱 㑲 㑳 㑴 㑵 㑶 㑷 㑸 㑹 㑺 㑻 㑼 㑽 㑾 㑿 㒀 㒁 㒂 㒃 㒄 㒅 㒆 㒇 㒈 㒉 㒊 㒋 㒌 㒍 㒎 㒏 㒐 㒑 㒒 㒓 㒔 㒕 㒖 㒗 㒘 㒙 㒚 㒛 㒜 㒝 㒞 㒟 㒠 㒡 㒢 㒣 㒤 㒥 㒦 㒧 㒨 㒩 㒪 㒫 㒬 㒭 㒮 㒯 㒰 㒱 㒲 㒳 㒴 㒵 㒶 㒷 㒸 㒹 㒺 㒻 㒼 㒽 㒾 㒿 㓀 㓁 㓂 㓃 㓄 㓅 㓆 㓇 㓈 㓉 㓊 㓋 㓌 㓍 㓎 㓏 㓐 㓑 㓒 㓓 㓔 㓕 㓖 㓗 㓘 㓙 㓚 㓛 㓜 㓝 㓞 㓟 㓠 㓡 㓢 㓣 㓤 㓥 㓦 㓧 㓨 㓩 㓪 㓫 㓬 㓭 㓮 㓯 㓰 㓱 㓲 㓳 㓴 㓵 㓶 㓷 㓸 㓹 㓺 㓻 㓼 㓽 㓾 㓿 㔀 㔁 㔂 㔃 㔄 㔅 㔆 㔇 㔈 㔉 㔊 㔋 㔌 㔍 㔎 㔏 㔐 㔑 㔒 㔓 㔔 㔕 㔖 㔗 㔘 㔙 㔚 㔛 㔜 㔝 㔞 㔟 㔠 㔡 㔢 㔣 㔤 㔥 㔦 㔧 㔨 㔩 㔪 㔫 㔬 㔭 㔮 㔯 㔰 㔱 㔲 㔳 㔴 㔵 㔶 㔷 㔸 㔹 㔺 㔻 㔼 㔽 㔾 㔿 㕀 㕁 㕂 㕃 㕄 㕅 㕆 㕇 㕈 㕉 㕊 㕋 㕌 㕍 㕎 㕏 㕐 㕑 㕒 㕓 㕔 㕕 㕖 㕗 㕘 㕙 㕚 㕛 㕜 㕝 㕞 㕟 㕠 㕡 㕢 㕣 㕤 㕥 㕦 㕧 㕨 㕩 㕪 㕫 㕬 㕭 㕮 㕯 㕰 㕱 㕲 㕳 㕴 㕵 㕶 㕷 㕸 㕹 㕺 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Jul 27	9.5	waking	Villed July 27	56/A
" 28	9.6	"		cont.
" 29	11	eating	Large caltropes ②	
" 30	10.5	"	6-12, none ①/13.	
" 31	11	"	Salmon greenish,	
Aug 1	"	"	black line bearing	
" 2	11	tested	conspicuous bordered	
" 3	"	"	with <sup>salmon</sup> whitish, d	
" 4	10	by kids	line whitish	
" 5	12	eating	① and both horns	
" 6	12	"	dull terra cotta	
" 8	14	"	red, ① narrowed	
" 9	13.5	tested	at 4-5, 6-7, 9-10	

" 12 14 eating and 11-12 had not  
 (just 11 out) broken through, the spots black  
 as part of the s-d dark line  
 Glendular dots white, evident.  
 No end spines.

Shed Aug 8 Terra cotta, ground  
 purplish, lines distinct  
 ① in and s. lines coming  
 continuous. Caltropes ② 6-12  
 and ①/13. No end spines

Shed Aug 11 One pair end spine  
 very red. elliottii form.



561

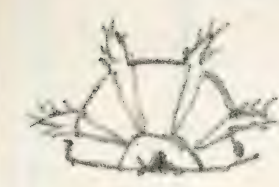
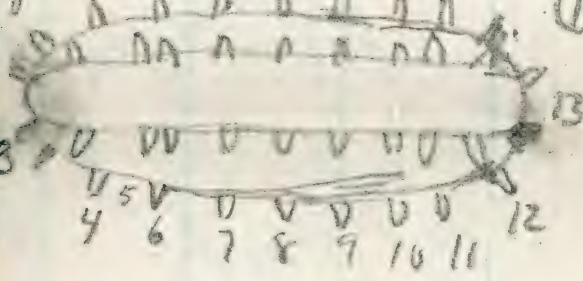
trans. narrow. A distinct lateral line, including both lat. & int. lines. Intercy. No. 1000.

On *Myrica cerifera* Long Island City with Mr.

Bentzenmiller Aug. 30 1895. Very red ones.

D. sp. moderately broad even, scarcely narrowing at ends, lateral space rather wide, oblique S-V space narrow, contracted. Ventrals = short horns, unequally developed but not markedly. ① about as long as ② on average, in ③ 3, 4, 5-11, 12 about twice as long as 6, 7, 9, 10; 8 and 13 intermediate. ② 3-4, 6-12 almost equal to 8 & 13 of ①. None in 5 - its spiracle runs up out of line with the other. Depression very slight but more distinct than *Silurus*. D. formed 4 glandular spots, 2 from front reg. 2 from post reg, showing this in 3 & 4-5 elsewhere consolidated into a single keel enclosed in an ill defined hollow. Adrenal not seen. Lat. 2 glandular run of dots (intercy.) [the reg. now absent] enclosed in ill defined hollow.

S-V slight intercy hollow without distinct glandular centers. Shape squarish elliptical. ① 5 & 6 are approximated and 10 & 11 less so. Skin conic watery granular, not apparent the glandular dots being smooth. Spine short, with separate tip but not so distinct as in *Silurus*. ③ 2 setae from a small pale wart. Ridges uniform no spots another stain between 6 & 7.



A 9 mm (to head) paler than other but same. B 12 mm. Hous & ridges bright red shading to pinkish on edge of ridges. Body flesh colored large irregular areas around glandular dots outlined in blackish as also pale d. line the areas as large as to be confined esp on sides giving d. c. last areas a blackish tint as if margins of wrinkled lines.



1828 Warratae. Brit. ent. v, Feb. 229.

Supraface of species.

Sepe some brown; sometimes yellow or brown more or less distinct brown or a broad dark band.

♂ + ♀ exactly similar, dorsal with mostly brown

♀ slightly paler and more translucent than ♂.

Thorax frequently yellowish brown; habitat eastern

Thorax seldom yellowish; habitat western

Sepe some brown; the dorsal paler; fore wings crossed by two lines paler than the ground color except where the 3rd pale

Dark chocolate brown; the line nearly white; often

One with 1 pair and 1 pair  
also and still had 1 pair  
callosity on 2nd with stage  
the one I put the  
absent on its own mark.

Separate.

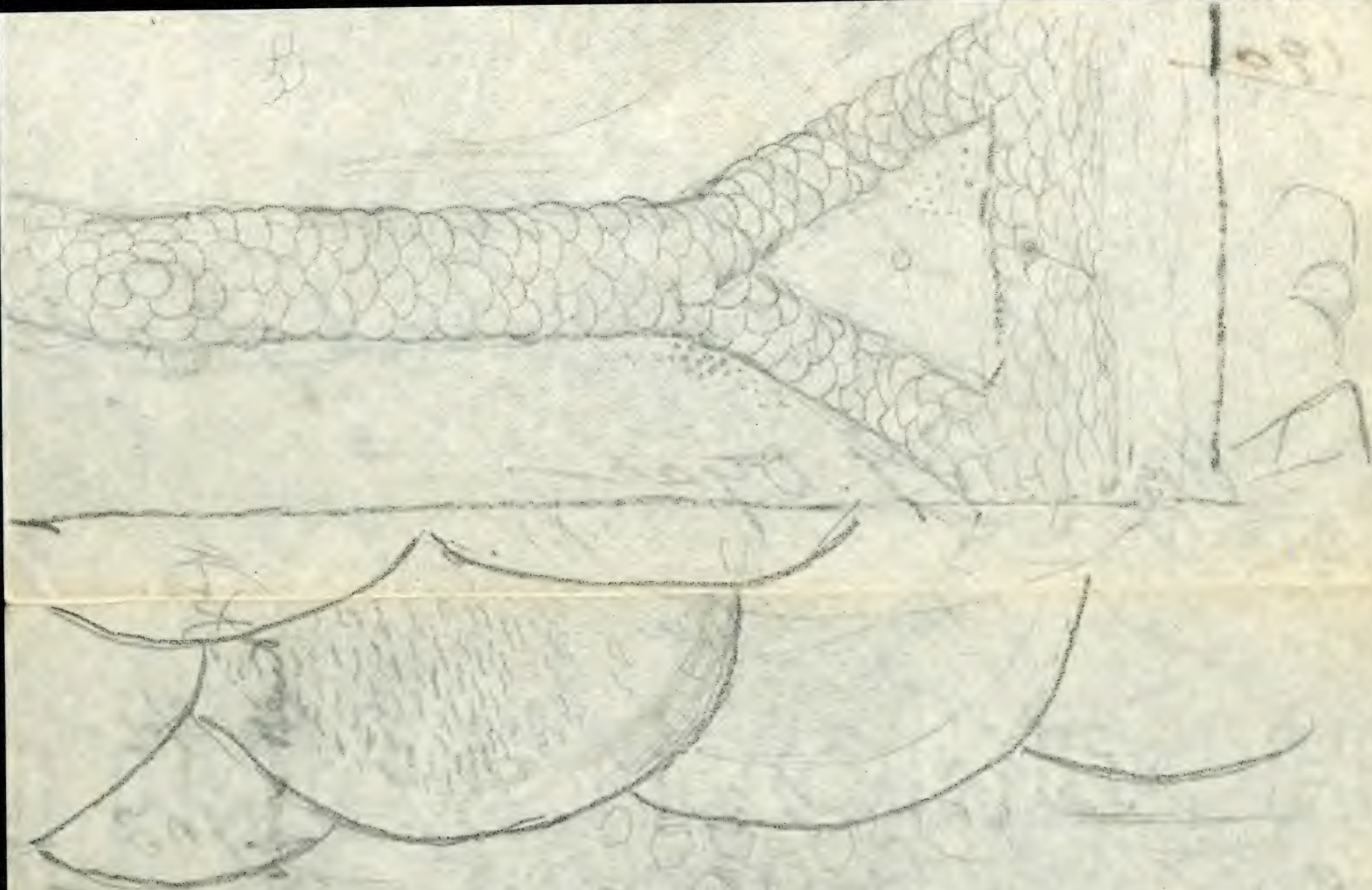
distinctive.

separate.

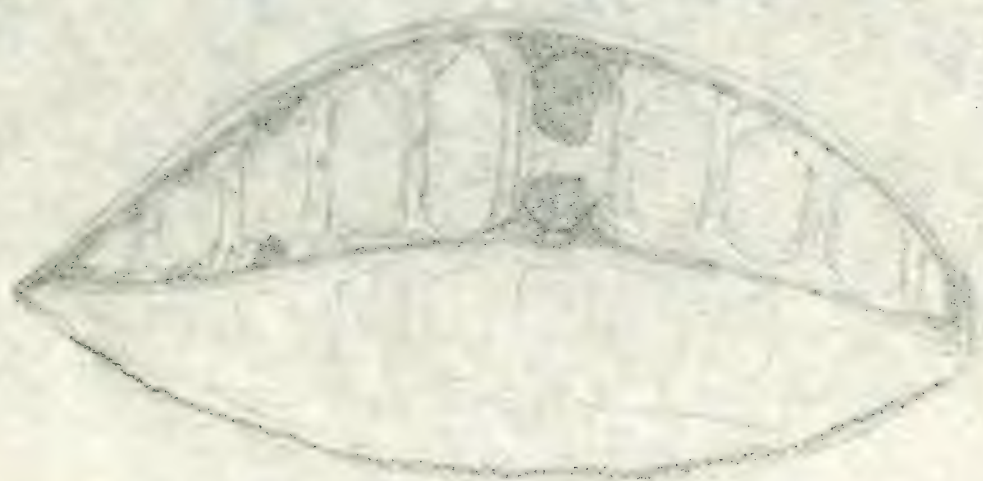


		I	II	III	IV	V	VI	VII	VIII
<i>Stimulea</i> *	{ Lengths	1.3	1.7-2	2.2-3	3-5.7	9-9.5	11-13	13-18.5	16-23
	{ Hds.	.3	.4	.5	.7	1	1.4	2.1	3.0
	{ Calc.	.25	.35	.50	.72	1.0	1.47	2.1	3.0
<i>y-inversa</i>	{ Lengths	1.5	-	2.5-2.8	3.2-4.2	5.5-7	6.5-9.8	10.5-13	11.5
	{ Hds.	.3	.45	.65	.75	1.0			
	{ Calc.	1.3	1.9	2.8	4.2	6.5	9.9	15	not 6.6
<i>Oscophya</i>	{ Lengths	1	1.5-2.2	2.4-3	3.4-4.5	4.5-6.6	6.5-9.8		16
	{ Hds.	.3	.4	.5	.7	1.1	1.2		
	{ Calc.	1.5	2.2	3.1	4.6	6.6	9.5	not 7.0	
<i>pollidia</i> 209	{ Lengths	1.5		2.6-2.7	4.5	5.7-6.5	7.5-9.5		
	{ Hds.	-		.5	.85	1	1.4		
	{ Calc.	.25	.35	.5	.7	1.0	1.4	not 7.0	
<i>perinata</i>	{ Lengths			-3.4	4.3	-7	7.7-11(14)	[span]	
	{ Hds.			.5	.7	1	1.4		
	{ *	1.4	2.1	3.3	5.0	7.6	13.	20.	30. 6.6





23. *Caridina* sp.  
21. *Caridina* sp.





190

47 West 49<sup>th</sup> Street

New York, March 4, 1896

Mrs H. G. Dyar

To Dr. Arthur R. Gage, Dr.

Dec-95 - Feb. 10/96

For Professional Services.

103

Filling 12<sup>th</sup> canines. Gold & plastic fillings

Treating and filling canal in Molar

Dressing out canines

Cleaning teeth

Received Payment.

A. R. Gage,



# Records for Euclea

1895

Doll showed me about 30 of his red larvae, all but 1 having the single black spot, the one had both pairs.

Moths raised by Miss Minton from Dolls 1894 larvae, presumably same as above came out monitor interjecta and trans. ad. delphinii.

The one 4 tuft larva spun & came out as Newburgh ♀ of the form with 'large green patch' or elliottii ♀ Miss Minton.

Others came out monitor 1896; one monita mated with ♂ of form querceti from Newburgh.







# NR 3 (brown back)

Aug 27 stage IV to shed.

~~VI~~ Aug 27 - 0 ? and

Aug 28 eating length 8.5

Aug 29 " " 9.6

Aug 30 " " 10.0

Aug 31 " " 10.7

Sep 1 " " 11.5

Sep 2 (th shed) " 10.5

Sep 5 VII eating 11.5

Sep 6 " 12.5

Sep 7 " 13.5



ved payment for JAMES GOR

8  
9

12.6

14.

10

14.5

11

15.5

other in my name  
Sept 13 (written) 11.5

Sept 12


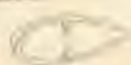
15.3

Sept 13 white to J



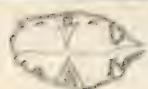
# Second ocaptha checks. 552f

Egg and newly hatched larvae  
from Miss. Winter July 31, 1896  
Egg when sent (July 30), fresh  
hatched had not eaten when  
received. Egg clusters on leaf.

July 31	1.1	Spiny with brown hump	
Aug 1	1.1	eating	
" 2	1.3	"	
" 3	1.4	"	
" 4	1.8	walking	
" 5	"	hatched	
" 6	1.8	hide gone	Smooth
" 7	2.2	eating	
" 8	2.6	"	
" 9	2.6	hatched	
" 10	"	"	
" 11	2.7	eating	
" 12	3.9	"	
" 13	3.9	hatched	
" 14	4.3	still	
" 15	4.8	eating	
" 16	5.5	"	
" 17	"	"	
" 18-19		hatched	



Aug	20	6.5	hike gone
"	21	7.2	eating
"	22	8.5	"
"	23	8.6	to shed
"	24	"	"
"	25	8.2	"
"	26	9.8	eating
"	27	10.2	"
"	28	12	"
"	29	11.5	still
"	30	"	to shed
"	31	"	"



Sept	1	12.7	still
"	2	13.5	eating
"	3	13.8	"
"	4	14.6	still
"	5	15	eating
"	6	"	"



W 2

Aug 27 stage VI but  
not very big.

Aug 28 9.8 stopped eating?

Aug 29 on back leg

Aug 30 shed, by hole 9.6

Aug 31 VII 10.6

Sept 1 eating 12.1

" 2 " 12.1

" 3 " 13.1

" 4 " 14.7

" 5 " 14.9

" 6 on back? 14.5

" 7 eating 14.0



Almost no  
hump

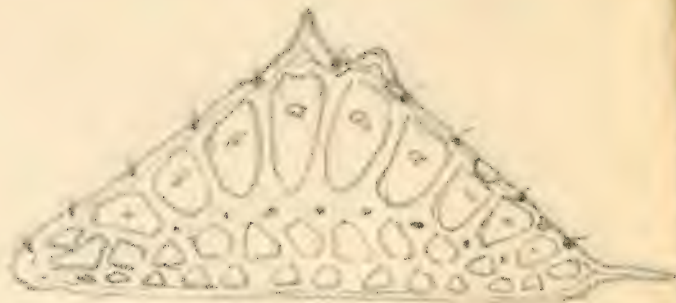
50/48 entry 15 min  
" 9 " 15.1

Steve Clarke

in evening  
H was  
all collected  
in morning

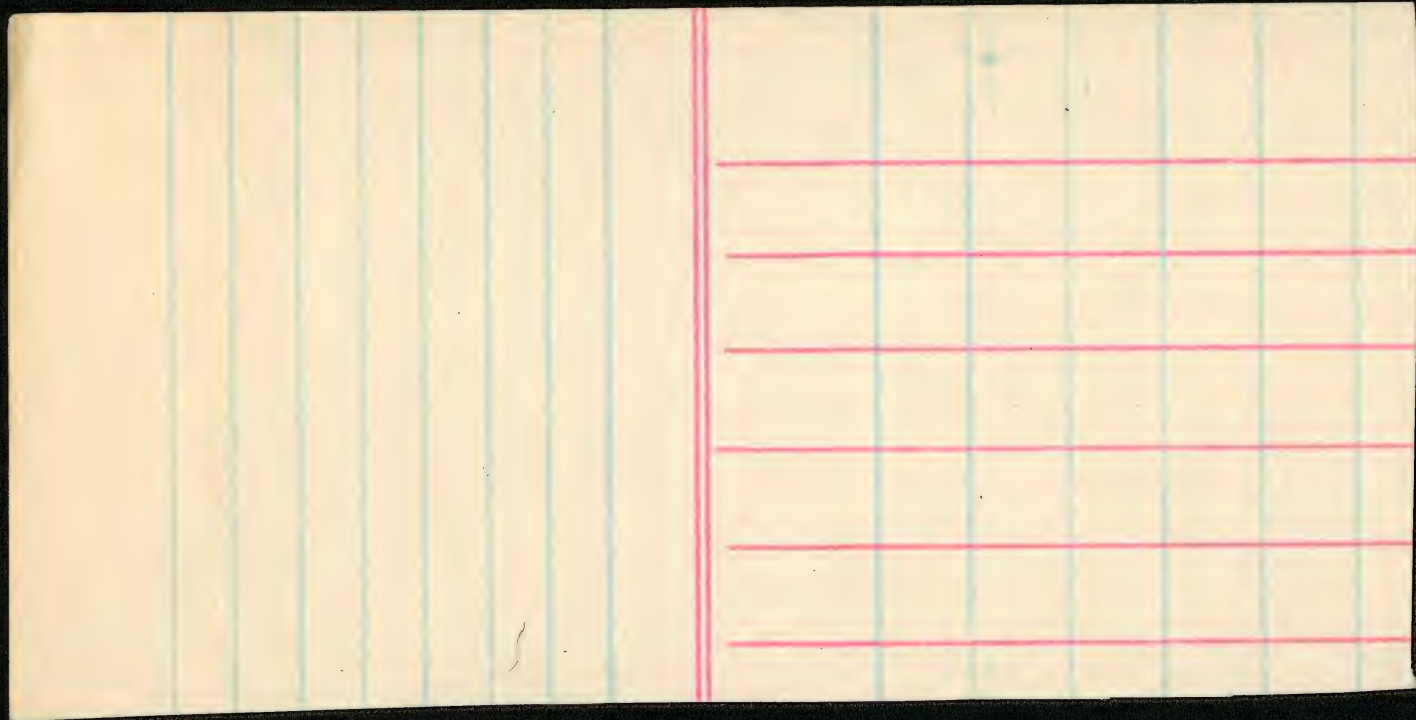


11 dorsal plates  
3-4 to 13-14



2-bumped scapula on black  
oak, Scarsdale N.Y.  
Sept 2 1895. Side green,  
back like "no 3" but a  
little more brown.











	15	4.6	(405) (18/15)	Aug 9	9.2
	16	4.9		10	3.0
Aug	17	4.7			
	24	7.2		12	3.4
	25	6.6		13	3.8
	26	6.8		14	4.0
	27	6.8			
	28	8.5			
	29	9.6			
	30	10			
Aug	31	10.7			
	1	11.5			
	2	10.5			
VII	5	11.5			
	6	12.5			
	7	13.5			
	8	12.6			
	9	14			
	10	14.5			
	11	15.5			
	12	15.3			
Sept	13	white 4.5			



Scapha end of stage VI X 5" (w/1)



Hickory  
Horn Lake  
Neighboring  
Chickadee  
Spun here





RALD.

riector.

: limits) and  
(ee).

Three Mos.	One Mo.
\$2 50	\$1.00
2 00	.80
.50	....
.40	....
.30	....

y editions in  
er copy addi-

oreign Coun-  
Postal

Three Mos.	One Mo.
\$4.75	\$1.75
3 60	1 35
1.15	.40
.70	....
.40	....
1.00	....

each paper  
xpires.

Mr. *AS*

*Dr*

TO N

*La Subscrip*

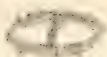
*Recei*



# Scapha checks 554

From Miss Morton July 30 1896

Had eaten; tubercles as in I

July 30	1.8	1.8	1.8	1.9	
" 31	1.8	1.8	1.9	1.9	still

Aug 1	1.8	by hide	Smooth
-------	-----	---------	--------

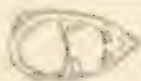
" 2	2.4	eating	
-----	-----	--------	--

" 3	2.5	"	
-----	-----	---	--

" 4	2.9	"	
-----	-----	---	---


" 5	"	to shed	
-----	---	---------	--

" 6	"	"	✓ II
-----	---	---	------

" 7	3.4	eating	 Sides pale green
-----	-----	--------	--

" 8	3.9	"	
-----	-----	---	--

" 9	3.9	still	d. faint yellow
-----	-----	-------	-----------------

" 10	4.4	hide gone	 Sides green
------	-----	-----------	---

" 11	4.8	eating whole leaf	
------	-----	-------------------	--

" 12	5.6	little sup. white spots	regular
------	-----	-------------------------	---------

" 13	"	to shed	✓ 5
------	---	---------	-----

" 14	5.8	eating hide	
------	-----	-------------	--

" 15	6.4	eating	
------	-----	--------	--

" 16	6.7	"	
------	-----	---	--

" 17	7.9	"	
------	-----	---	--

" 18		to shed	
------	--	---------	--

" 19		"	
------	--	---	--

" 20	7.3	"	
------	-----	---	--



Aug 21 8.5 eating

" 22 10.5 "

" 23 10.8 "

" 24 12 "

" 25 12 to shed

" 26 " "

" 27 " "

" 28 13 still

" 29 14 eating

" 30 15 "

" 31 15.1 "

Sept 1 16.2 still

" 2 15.5 eating

" 3 17 "

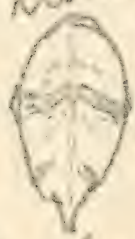
" 4 18 still

" 5 17 eating

" 6 17.5 all turned white  
and stopped eating.

low hump  
long island  
scapula

green, w/ry  
veg tint  
brown





"no 3"



From a series collected with Mr. Beutenmüller at Long Island City (Aug. 30)  
on Myrica cerifera. some brown along sides on the sides.



have no criterion as  
Physiological chara  
among other groups  
whether they are  
used or not. Ele  
are less variable,

But granting the  
constant for practice  
be able to distinguish  
The liquefaction of  
growth forms and  
indefinite or difficult  
more positive tests.  
be universally appli



209? with cherry Glenora 22

Diary

Sept 6 5.2 toiled

Sept 7 (by hide)

" 8 5.5 eating

" 9 5.5 "

" 10 5.5 "

" 11 5.5 "

" 12 5.8 "

" 13 5.7 (in back)

" 16 5.7 by hide

" 18 5.7 eating

Elliptical skin coarsely  
granular depression well  
marked as a Ventricle

Sd line yellow 3-tail  
indented not almost to base  
edge of luteo depression 6-8

an elliptical burst brown  
patch slightly crimson on  
edge 6-8, d. space filled

in with dirty cream

red 3-4-

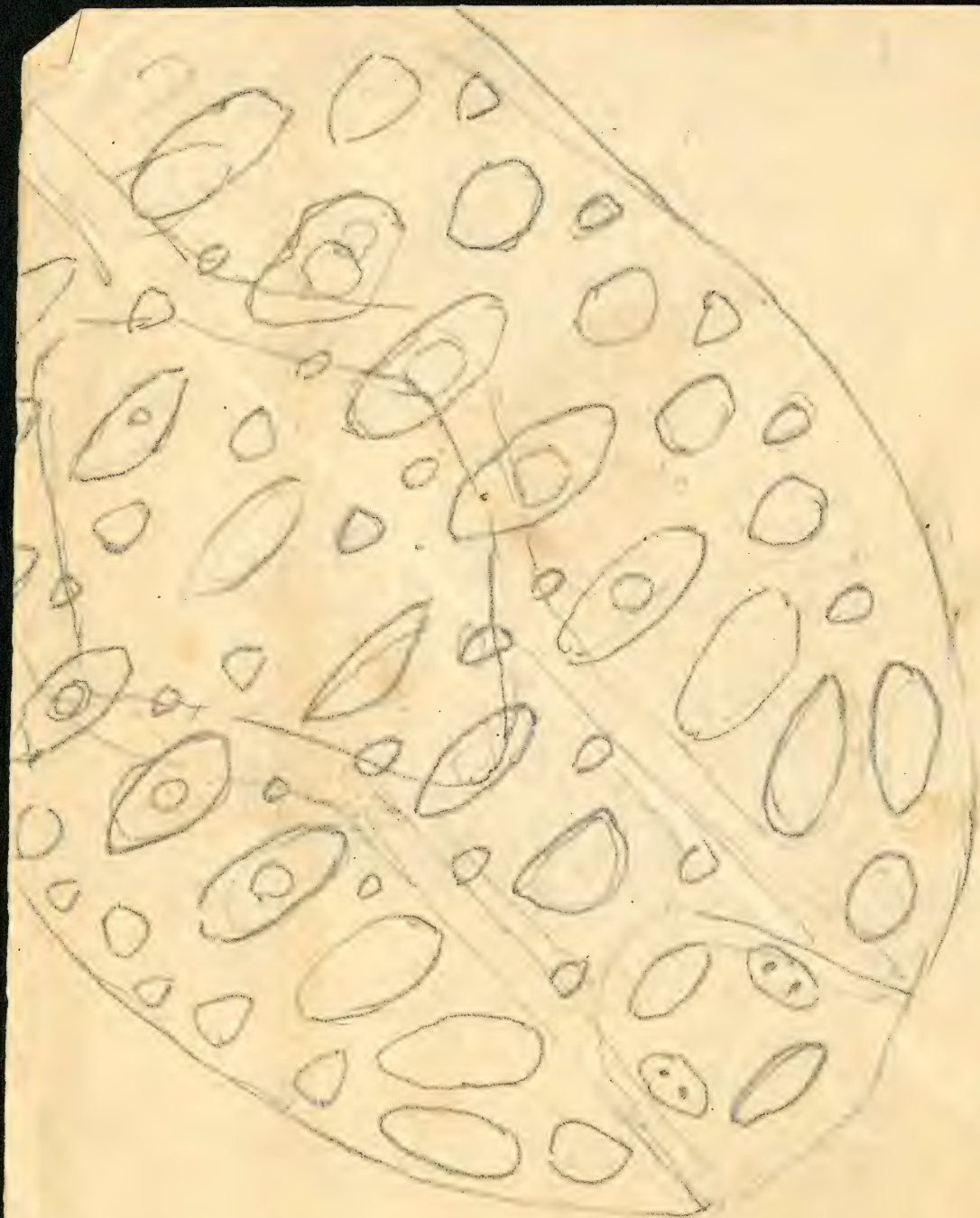


Shed Sept 7 Depressed spaces, deep sharp edged  
pits. Skin coarsely wrinkled granular  
Deciduous marks later. Seems to be pallida



Shed Sept 16 Same as first The 2 spots  
showed a tendency to join but  
the larva was very sickly and  
only ate a little. Died Sept 23







Code stage I on (209) B III F

black  
 oak July 27 1896  
 Bellport L I

July 27 1.15  
 " 28 1.1  
 " 29 1.4  
 " 30 1.6  
 " 31 1.6 ch  
 Aug 1 1.7  
 " 2 1.6 "

" 3 1.8 ext  
 " 4 2.0 "  
 " 5 2.2 "  
 " 6 2.2 "  
 " 7 2.2 light

Head joint  
 after note  
 between.

Setae moderate, the  
 structure  
 as described. ①

squarish, dorsum  
 flat; rounded,

tail quadrate. Sides angled is;  
 ② a moderate ridge, s-v process  
 retracted. all granules present  
 face pale green, a faint yellowish  
 space centrally. no areolae.

Depressed spaces all present, chief  
 just like the latitudinal ridges  
 narrow, distinct of one row of  
 large clear granules. Eats in a trail  
 its own waste but only 2 or 3 times as long  
 as wide.

Aug 2 Elliptical tail  
 Mangled quadrate, all pale green.  
 Dep. space well marked. No









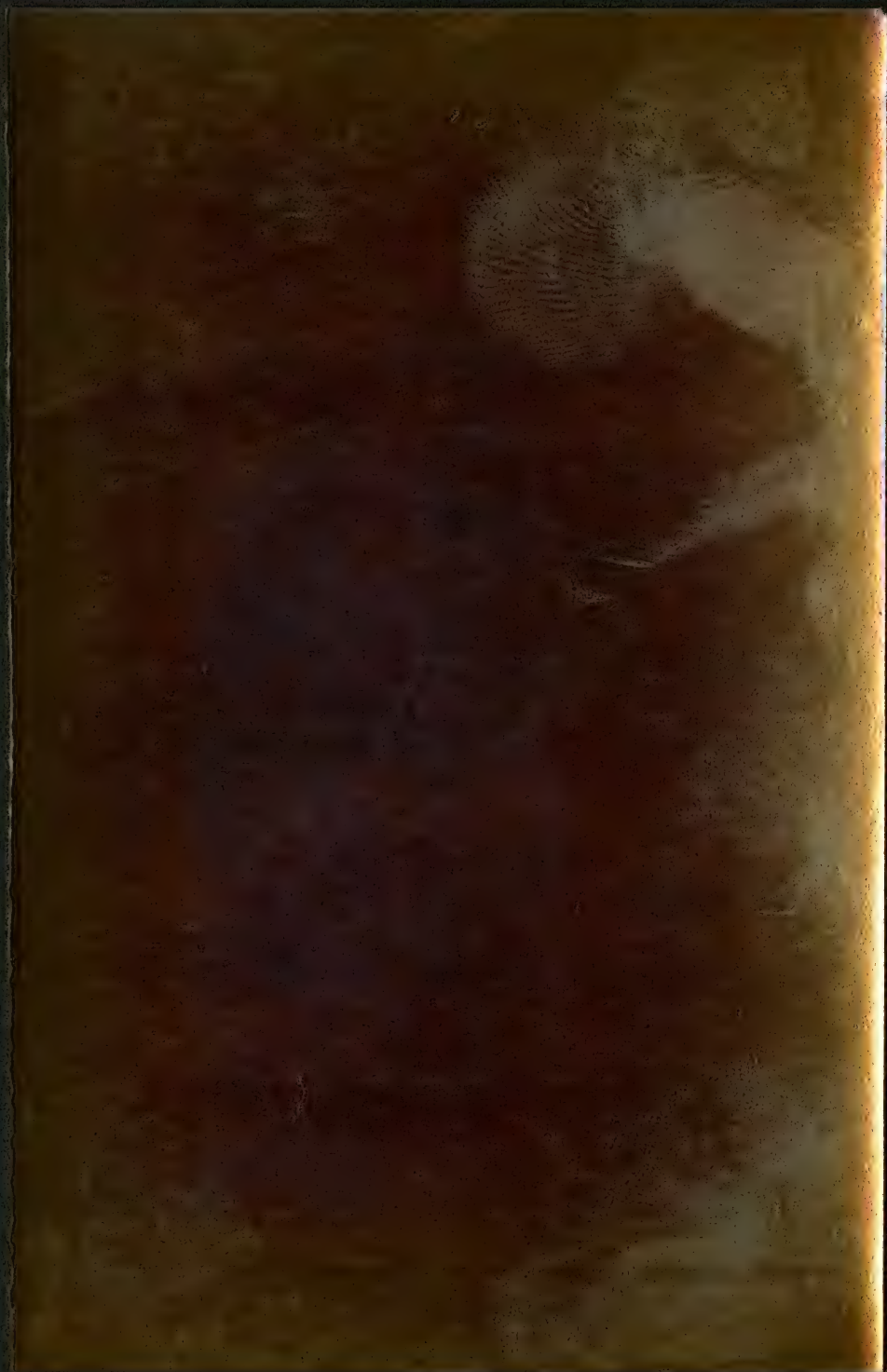
209 B

LL

IV

Aug 7 2.2 1 side 078 big net shot  
 " 8 2.4 many on loose covering  
 " 10 3.1 still 3 dep. spaces.  
 to shed (just in net)







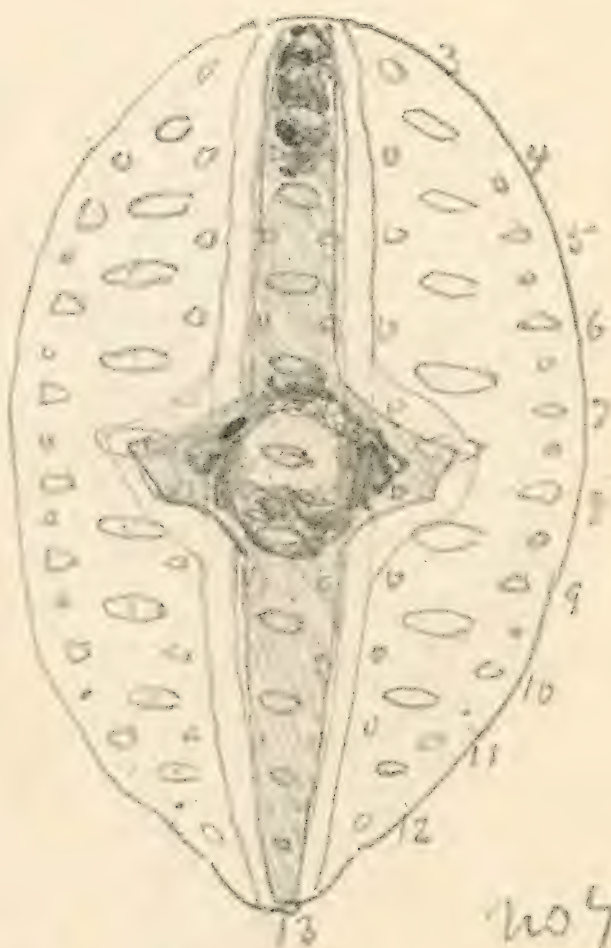
3








558C Bellpot L. I.  
 End of stage VI Aug. 7 '96





no 4

-  purplish black
-  crimson
-  yellow



blackish purple

eburneo

creamy  
brown



Mafherre 29

Sept 14 1897





Gaaphanbe L. 9. Sept 1897



N. Y. P. FORWARDING  
O. POSTAGE DUE FOR  
CENTS



Gophawk L. I. Sept 1897



d. patch. Feathers not to a creamy brown  
except some patches inside red edge.

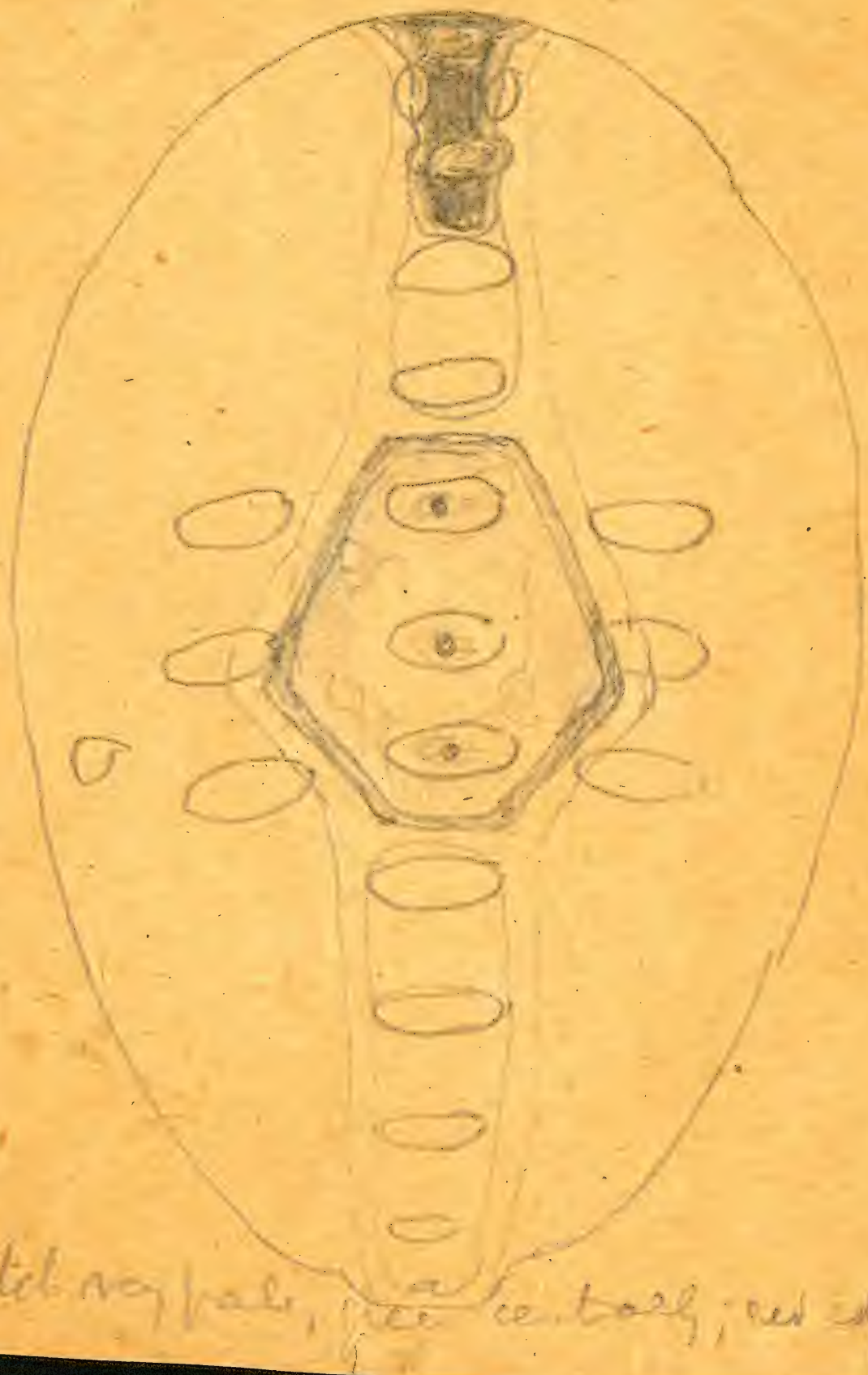


5 Mar

et

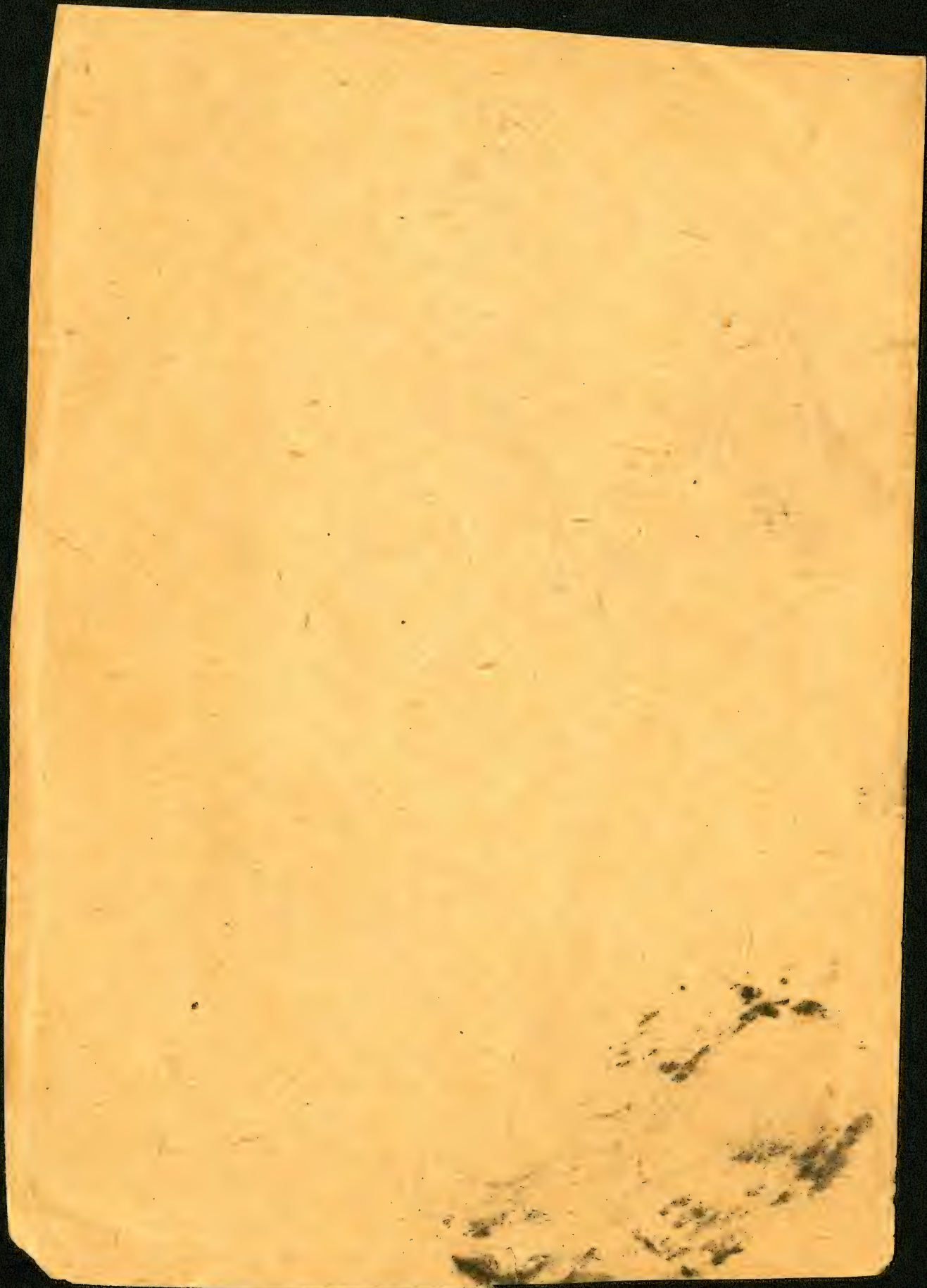
ork  
L. J.





Patel ray, pale, yellow center, red edge







as in previous stage. Length 6.5 mm (eating hide)  
 setae present, very fine. Plates elongated, some of  
 anterior ridges well scaled. D. plates are divided  
 by a slight dorsal raised line. Hump on 7-8 quite  
 well marked, tail round pointed. Shape of mouth before.  
 Lateral plate well marked, upper s-v with distinct  
 glandular centers. Spiracles round, yellowish with  
 dark center. Dorsum creamy brown, the ridge above  
 all the d. laticed lines and a narrow  
 d. line on plates 2-8 dark brown; hump  
 off plate 5 very dark. Glandular center  
 of plate also dark. A white spot in  
 ridge at plate 8 and a little one  
 at plate 7 seen best from side. Side  
 plate 1 (not) and 3 and 4 dark leaf green  
 glandular centers of upper s-v dark.  
 Seg. on ridge from side view a row of  
 dark round prominent spots which  
 probably are the heads of hirs and in  
 No 2 a row of drops of clear fluid seen  
 just there but disappeared later.  
 No 2 back all brown, (white spot) No 3 plate green also a  
 yellowish green cross of a d. pale line through plate 6 and 7 &  
 on the laticed ridge between 6 & 7 (joint 9). A dark brown  
 shade from hump across plate 5. One white spot.  
 Aug 28 No 1 is it shed? on cover but not eating (so skip) Dec 29  
 No 2 VIII Aug 30 Aug 31 10.6 Same as before in shape and  
 fine setae. Color same. Brown of ridges a little  
 marked with pale, & plates more of a creamy  
 brown. A small sd white spot 6-7 and 9-10  
 beside the nasal hairs are 10-11. Setae are  
 on both sides of the ridge especially @ and 2  
 width of head 1.8 mm & (in head)

Spun Sept 10. Last stage seems to have no  
 differential character from the previously  
 ones. Greatest length of sample 13.1 mm

555

Richard Scapellato

Big black Arctian from a boy Jefferson High School  
 N.H. Aug. 7 1895. Black, the body annulate  
 with velvety black & more shiny brown-  
 black, spiracles reddish. Mute large, i  
 and ii black, iii-vi white with shiny black  
 tubercles. Hair long, soft, Spinosoma  
 like, black, the ends of the longest  
 hairs solid light brown. A few of the  
 s-v hairs greyed. Head black, about 3  
 mm. Larva curls in a ball 20 mm diam.



from 3 broad distinct lines the  
S-V white line.

(54) cont.) VI

as before a yellow line over 3 & along S-d ridge to end of broad tail, incised by ad-d depression. the scallops filled in with dark green. All the d. and the 2 lateral impressed (lateral intensity and lower lat. seg.) spot pale yellow. A row of intense yellow spot below skin along lat. ridge. Skin closely covered with crucial granules, clean many quite sharp pointed. S. depressed spaces small, smooth, moderately deep. Lateral ones obscure and broadly defined. A white line along S-V edge. Head green, exp black, jaws brown; under 1.4 mm. ± differs from stage V in having the ridges smooth except for the short setae, simply angled. Shed hd 1.0 Case only lower half; all above 1.0 fine Aug 12 eating 7.7 mm. Aug 13 9.5 - Aug 14 9.5 - Aug 15 9.6 - Aug 16 gone on back of leg to shed. 9.8 x 5.6 mm. Stage VII Aug 19 3:30 P.M. (not seen to shed) Length 10.5 Very smooth, setae fine, slender and short entirely inconspicuous. not long and distinct as before. Body quite smooth, no ridges, d space flat, moderate broad, lateral space sloping, not concave. S-V space small retracted. Lateral ridge slightly wavy. S-d line broad and distinct yellow with dark marks segmental above, the pair joining in the quadrate tail. Yellow line over 3 and joining white line along S-V edge. Impressed spots

Aug 21 (VI) 9.3 to shed. Aug 21 shed eating, smooth 10 mm  
Aug 28 11.2

yellowish, body light green. Skin closely covered with large clean granules closely appressed and somewhat irregular. Impressed spots small, rather deep the bottom with a trans groove ind. plates, rest very finely granular. Upper seg lat. small, greenish, the rest yellowish except lower seg. lat which are orange. A row of small yellow dots beneath skin of lat. ridge. Width of head 2 ± mm. Aug 21 length 11.0 mm. Aug 24, 11.5 x 6.7 of a bright rather yellowish green. though also a whitish cast over. Dark line to 2d line supports continues through not as under lens. Aug 25, 13 x 6.5 mm setting whitish like *Pachandria geminata*. The only white part, lat ridge is green, but the rest rather opaque whitish green. S-d line very distinct pale yellow spotted with an orange tint interspersed edged above continuously with blackish green. Under seg. yellow line over 3 and not orange shaded fading into white S-V line. Depressed spaces marked by faint yellow rings as their glandular centers are green. The white line along S-V edge continues IV + V as distinct



setae much more evident than the obsolete ① or ② (In previous stage larva clean yellowish green, now very whitish, compared directly) Has orange on S-d line

Very different from European sp? Aug 26 13.3 x 6.4 Still whiter fine whitish green, shading brown translucent down the sides. Aug 27 13 x 7.5 Aug 28 13.5 x 6.8 Aug 29 shrunk up and turned whitish + pale to brown? on bottom of dish. After Aug 30 in the moss. falls around



556

Set 29  
48

Lymantriid (*Dasychnia rossii*?) collected by Richard B. Seager, of Jefferson Highlands, N. H., on Mt. Adams on rocks above timber line several examples. Received this Aug 18, 1895. Head 3.2 mm velvety brown black, & black a reddish shade on post side of head. Vents 3 above stig. vent on 3 and 4, whitish retractile tubercles d. on 10 and 11 behind the small i, in one example much covered up by the hair. Vents normal, is very small stig. post. leg plate distinct. Body black with a frosty gray shade; hair thick all tubuled some heavily feathered but none plummed. <sup>Tuft from vent on joint</sup> i 5-9 and 12 a little more closely tufted, but no true tuft and no pencils. Hair gray, mixed with black with bright yellow hair on <sup>large hump</sup> outside of ii 5-13 and all bases of all the hair bunches on thorax. S-V hair bunches small. (See other examples) Mrs. Henson found a shed skin on Mt. Washington.

Another from Mrs. Henson, Mt. Washington, sent by Miss Henson. Hd 2+ Ret. glands pale corded brown. Hair faded gray & black mixed, soft thick the yellow hair less numerous, densely only 7-9 and on thorax from all the vents but faint S-V. The faded gray hair are densely feathery i-v, the black & yellow ones only spinulose, vi with few hair and short. Hair mostly very long, quite even but not regularly so, no tuft nor pencils. Curls up in a ball like a cactus when disturbed.

Got three more eating blueberry and white birch about 3 miles down the Glen carriage road from Summit of Mt. Washington, Aug 22 1895. Like the other, more smaller, vary in amt. of yellow hair.



Aetia from Mrs. Henson sent by Mrs. Hagen  
 Hd shiny black, w 2.5 ant. Body velvety, sutures  
 less or, black, ant iii light yellow, the  
 others all faintly brownish, all with the  
 tubercles and stiff rather short spring  
 hair black. When hatched the sutures are  
 marked by a narrow shiny line contrasting  
 with black body. Base of warts i and ii shiny.  
 a few longer black hair just. (seem Eypipie)  
 Abdominal legs light yellow. The feet black.  
 (Is this *Peribaculus* *quercus*  
 of Snyder here? *Quercus* like  
 it)

Codes in Chestnut Park, New York  
 N.Y. Sept 4 1895. collected on back of leaf.

A. Elliptical tail rounded, <sup>apex</sup> quadrate, d. sp.  
<sup>length</sup> Moderate, lateral angle 8-10° small but  
 Sept 5: 3.6 passing not contracted, build of *Peribaculus*  
 .6 3.6 at hatching depressed areas deep, very well  
 .7 3.4 " " marked with 1 side. Stern on  
 .8 3.3 side? laticed ridges short, fine dense

head Sept 10. white pubescent with many  
 colorless tubercles minute fine  
 longest d, shorter on back. ridges  
 more like ground plane granulation.  
 Bottom a depressed  
 space fine granular  
 shaped and elliptical  
 very distinct d add  
 all the lateral lower seg. small



Fig. made after the codes were dead and this colored  
 2 subventral confluent in 8 shape  
 light yellowish green a yellow  
 line along s.d. ridge 4-tail con-  
 nected 7-8 by a bridge with  
 a transverse crimson streak  
 a faint salmon band on 3 and  
 sides pale green. depressed spots  
 darker without colored center.  
 Hd green smooth brown, eye black, ant. 5 to 5 smooth  
 rounded, ant. tubercles, the setae on the ridges  
 very fine and obscure. Vte on ant. edge of 2  
 is blackish giving a dark shade to the  
 skin. \* the highest all common 3d seg.





width of head .5 mm

July 24 4.5 lids, 4.2 wild  
(grey wild, under not  
set but rose. Put  
out in bag to save  
(4))

7 at 701 Dec 21. Sept 9 1896 all in chestnut.  
Lengths all 9-10 mm 558 C



Four drawings of insect eggs, numbered 8, 9, 10, and 11, showing different stages or species of development.

Four mice near Coytesville  
Sept 14 1896 (8 and 11 morning)

B. Same shape as A. Tail round quadrate, d. space rather narrow and very uniform width, wanting a little post. but scarcely as ant. Skin rather regularly coarsely warty granular, the depressed spaces narrow esp. the larger ones elongate transverse, deep, well marked, the bottom of



lat. all present, 25-30 cm. in  
obliquely, E. pale yellow to green  
abundant, the many colored in  
lateral ridges down and up  
partly lat. area in middle  
body (E-11) distinctly esp. spotted  
with emerald green. 2 spots

2d line, slightly crescent, edged but straight  
to tail, not connected, through a light yellow  
shade on 8 ant. indistinct sp. large black in-  
tercepted spaces with a yellow spot  
in both upper & lower ends clear green  
anteriorly. Large d. on base marked same  
(ie yellow central dark greenish spot on  
occasional narrow of space reaches same it)  
last edge of 3 marked by a column &  
yellowish edged line. No anterior setae  
anteriorly. Later dorsal seg. d. red spots  
3-5 including back color of edge of 3. Sept 7  
yellow bridge not more distinct. Sept 8 a faint  
small crimson shade in yellow bridge  
on 8. Bridge between d. space 7-8 and



slight passing into ad imago of 8. 2 green  
hd testaceous whitish, jaw brown, eyes black

Aug 10. All mostly whitish, s & transparent spg-  
ment all gone both green and yellow the  
red left. Inside mantle working. Sd. line  
white, obscure.

Sent cocoon to Miss Weston. Nothing out by  
July 25-1896.

Calculation length

I .7-1.0 (70mm)

II 1.0-1.5

III 1.5-2.2

IV 2.2-3.1

V 3.1-4.4 A3.6

VI 4.4-6.3 C4.5-6.3 70x40

VII 6.3-9.0 B6.5-13 9-10

538 B, C = 669

Full Lee ones out June 22, 23, 24, 1897 One  
a horn blurred form ♀, two regular  
Caecima ♀

Calc. — — 1.2 1.83 2.77 4.2  $\frac{66}{100}$   
Found 1.2 2.2 3.2 4.2  
559 July 4

Apatela lithospila (?) on chestnut, Walnut-  
land Park, N.Y. Sept. 4 1895 Hd bilobed,  
green, yellowish above apex of lobes dark  
brown dotted, shiny brown water angle in  
ways. (sh hd 2.2) w. 1.9 mm. Body humped up at 4-5  
and 12 a little angularly enlarged, position  
like grisea etc. 1. Hairs small, several  
hairs, a few pale 2<sup>d</sup> s.v. Side green,  
a d. dark brown band edged with yellow  
3-end of 13 slightly indented in s, but not  
reaching it till on 8-12 it widens to  
between ii & iii gradually, continuing to  
it just over ii & 12, narrowly to as at pl.  
On 8-9 it is black shaded centrally in  
green center, but a faint pale, obscurely  
whitish, d line. Hair blackish d. pale  
s.v. Some minute brownish pale d. line (2<sup>d</sup>)  
sh hd 1.2. Antenna not marked. (shad before described) d. band mostly  
yellow, dark in the darkest part, but  
pattern quite recognizable.



Molt Sept 7 Hd 3.2 bilobed, narrowing to vertex, green apices of lobes dark chocolate brown, the color extending in spotting, green fainter down face of lobes and especially on the angle, mouth whitish. Several long black or white hairs. Body 12 sharp humped, small, i.e. in a square, ii a little more each other than i. Hairs rather few black d., pale s-v with some fine white c-hairs there. Generally much like grisea but no green spot in the band. 4-6 hump slightly humped up not nearly so much as in grisea. Sides clear green, d. band rather light brown with narrow yellow edge and blackish shade 8-9 a narrow pale d. line 3-13 with same undulating as before, slightly wavy, in an elliptical patch 7-11 (i.e. middle of middle of 11), rather constructed at 12 ii.


Molt Sept 11 Head about 4.2 mm Green the apices of lobes narrowly solid purplish

brown, shining with a few black dots, the color shades down the angles in freckled spots on a yellowish ground, obsolete about  $\frac{1}{2}$  way to ocelli; ocelli rather pale; mouth part yellowish. Red green, clear, a little whitish furthest down the sides. 8. band 3-13, slightly milky chocolate brown very narrowly yellow edged; widened in 3 and when it begins expand C-h a cell of 2 green. Passes inside i in 4, just covers i, slight expansion in 5-7, then widens below ii in 8-10, just over ii on 11 a narrow furrow to the square i, ii in 12, narrow into 13 but end of anal plate green. Seg especially the ant. i-ii slightly blackish shaded. Spiracles white with black ring. Hairs quite long but very fine and sparse i-iii black, the rest with a few 2° s-v white. Clasper 1 tip of thoracic pale, then bases green, a number of small pale whitish



dots on the sides. Skin minutely  
spinulose. It is pointed eluviated,  
other body rather uniform and  
more cylindrical. Tubercles of most  
white. Dorsum even and beautiful velvet  
green contrasting with frosted sides  
Sept 17. turned olive colored to J

= georgica % specimen U. S. N. M. (May 1896)  
See also Packard, Monograph 154 613!!  
Calc. .52 .86 1.4 2.4 4.0 not  
56.0 Is it form of oblique?  
1899

On white oak, Van Cortlandt Park, Sept. 4 1895  
  
Hd lower than 2 and  
4 6 8 10 11 12 Gently under st.

flesh color with some pale purple dots and  
larger irregular blotches forming irregular  
vertical bands on 5; labrum reddish.  
to 4 mm Body green thickly long tubercles  
strengthened with white & finely peppered  
with <sup>red</sup> black dots. A distinct cyl-  
indric white SS line, <sup>3-13</sup> part marked by  
the dots & adjacent as spiracle on 5 <sup>7</sup> & 10  
4 purplish mottling, (tubercles of lateral pot-  
tion?) The feet red rings, all like  
body, anal white, reddish on inside  
& brown line above clasper on feet 7-10  
a 1 white band spreading out on  
and edge of each where it is marked  
with a black line & fine red streaks  
narrow & even to 8, dividing still  
narrow to sides on 6, sharply angled  
<sup>90</sup>  
45° & return to dorsum undulant



a little tinted column & yellow with  
 5 few red streaks, join on 8, narrow,  
 white, divide again on 10, leaving a  
 long elliptical d. green space, the  
 bands narrow, red dotted, joining again  
 on 13 with a central d. purple red  
 streak which joins color in inside  
 of anal feet. The lower part of the  
 on 13, all in a whitish cloud. There  
 is a region & region of red feet a  
 little bluish. Lower smooth  
 setae obscure but several in base  
 of legs. Dorsal enclosed green patches

(2) like the side, then longitudinal  
 white streaking a little heavier.

Another Belpat L. I. Aug 15-1896 Hd. 2.3 pale  
 brown, a mottled purple band up each side  
 mouth & ant. yellowish; apex under 2. A  
 pair of short reddish horns on cer. sh.  
 Green streaked with white & dotted with  
 black, a yellowish line from horn even  
 a green d. 14-8 on anal 10-13, white feet,  
 a yellow stig line 3-13, a brown spot  
 above it 5 & tiny dot 10. Anal feet held  
 out, white with brown line inside. Shed  
 Aug 17

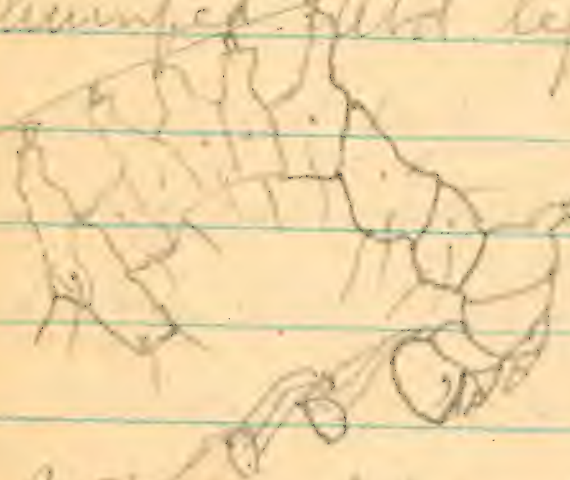
Has ant. spine, white <sup>late stage</sup> bluish tipped above base  
 of ① 13 but none at ② 12, only a caltrop patch  
 on that horn. In stage before last 6-12 ② have caltrop  
 patches whereas in ~~depression~~ <sup>5-6</sup> only on 6-11 ②

Eucha elliottii (?) Several in Myrica (see  
 paper) but all worrying but two, and both  
 these had the sd band broken. They  
 are a brilliant red a terra cotta color  
 the breaking of the sd band showing  
 blackish coloration with the dark  
 squares and line of both side and  
 sides. Bands not regularly broken in  
 one 6-7 completely the other a place only  
 half way through. In another 4-5 was  
 through, 6-7 completely 9-10 and only 11-12  
 not in the least and a red bridge connects  
 horns on 11. Directly compared with some  
 green delfinaria. In both horns color  
 edge, but the breaks of band on delfinaria  
 are square & discolored. Short horn of del.  
 much shorter in proportion (same size can)  
 horn of del. on 6 7 9 10 less than  $\frac{1}{2}$  as long  
 as 5 while in elliottii they are about  
 $\frac{1}{2}$ . Long horns seen shorter <sup>but are not elliottii</sup> del. ① 1.4, 1.8  
del. has 2 pointed "claws" black tinged before ① 13 &  
 above ② 12. Horns elliottii ?



562 = 86

*Harrisina* *drisipal* from Boll  
on Ilex. 12 with a large high  $\square$   
hump i & ii in square, 6 also slightly  
humped. Hd leg long, 13 small



Black, shading to  
red-brown on ant.  
side of hump on 12  
and the feet.

Position of alar mound. Warts long conic  
i & ii near, in line, iii, is post, v all  
single-branched except iii in some seg.  
vi with many hairs, many hair on leg  
plate. Sides of 7-12 streaked & washed  
with whitish flesh color, joining over  
back centrally. Hair of c-sh. hold  
shed heads which have conic  
pointed apices till last stage  
(See below for details)

563

8/25

*Harrisina* on grape, probably *crucialis*  
(or *metellus*) from 7 Dec. Collected, Texas.  
Curves to NW, and Sept. 13 1895.

Hd retracted & concealed within 2. Body as  
in 371, Darnall, above leg, also tuft on leg. 1  
Light yellow, a trans. black band reaching  
only to spiracle covering D & 2, & narrow  
all over on 2-3 black on 3-6, 8, 10-13, 2 also black. Between the  
barbs 5-6 and a narrow under before 8  
also between 10-11 & ending 5 and 11 in  
faint light purple blue. Uterus minute,  
all of 7 & 9 and 5-8, feet & venter yellow  
folded part of 2 whitish. Hair very short,  
black the vent. hair but rather large, con-  
columnar with marks (either black or yellow)  
5-8 hair pale & longer. Hd dark 1 unit  
Redescribed yellow c-sh, warts on 2; a  
band on 3 covering 3 upper warts (i+ii, ii+iii  
iii) & also warts iv+v and vi; a band on 5  
& 5-8; a band on 6, 8, 10, 11, 12 to spiracle  
anal pl. black with hair. Purple



patches between bands 5-6 rising forward to cover lateral area of 4 to the band 6 in rounded points S-V near to front, edging band of 8 in front, midit as lower edge of band, between bands 10-11 and edging band 10 in front in the same manner as band 8.

A sac-like exapinated pouch on 2 below & behind the S-V vent. Paired antecap. d and single large antecap. lateral glandular dot, pale on the purple markings. The feet light brown, rest of body yellow. Head shiny brown-black. Spiracle on joint 5 a little higher up than those on 6-12 but vent's same. Around spiracle on 6 & 11 a circular inflated area, that on 11 projecting below in a tip like prolongation.

[Made for structure  
of flaps & not  
particularly for  
marks]

564

The "flanged larva" (T in old lost book) Endropia armata in black oak, But Yee Sept 14 1898. Sitting on a part of dead leaf & eating the adjacent living portion. All dead leaf brown variegated a little with whitish shades with a series of dark brown spots and a segs. All fine spinose granular setae short conic, thick, pointed. The "flaps" are 2 processes jointly formed, arising S-V & : : throwing the spiracle to the dorsal aspect, nearly level with the dorsum. On 3-4 they bear 3 setae in tri with spiracle a 2. On 5 spiracle is below the process which bears no setae, viz. iii, above & behind; on 6-9 process bears iv & v with spiracle above; on 10-12 the spiracle is above but there is only a point united to a process; C-sh setae and i on 12 also become pointed elevations. The whitish shading are arranged longitudinally, streaking the body with dark & light shades. Spun Sept 26 Corn of piece of leaf, quite large very far thick



Seems OK from description 565

Alcoholic larvae of *Megathyrus yuccae*  
from Mr. L. O. Howard, ex coll. Dept.  
Agriculture, Washington DC (Nov '95)  
Seps irregularly b-annulate, uniformly  
densely covered with short fine pile,  
no primary setae distinguishable.

On a large cth and other common  
pitted areas one above spiracle, 2 below  
it and one less distinct on 5 & 6 fold.  
Head slightly below 2; granula pilose  
Anal plate large, granula pilose  
not very common. Feet normal in  
number but short, the very distinct  
notched in a trans elongate ellipse  
narrowly broken internally & within  
In anal feet just  $\frac{1}{3}$  of crotchets are  
gone. Crotchets consist of 2 double  
and alternating shorter & longer  
 $\frac{1}{2}$  (in)  $\frac{1}{2}$  in one place a single 3rd  
and still shorter (only one hook)

What 5 mm *Megathyrus yuccae* in coll. of  
Dr. W. H. Cresson

Bluffton SC Feb 7 '90

Another (Panama box 4 div 4) very different  
Head large, neck small, anal plate  
projecting. Body smooth but with  $\frac{1}{2}$  inch  
spines very small fine 2<sup>d</sup> hair all over  
Cth smooth, no additional areas. The feet  
largely absent. Crotchets abd. feet in 3  
rows, faintest, scarcely hooked, very different  
from yuccae & the rings not perfect  
ellipses, oblique set, pointed before in-  
wardly.

Another ("W. O. Shufeldt") body blackened  
and gummy. Annulate, pilose, cth  
not projecting, crotchets in 2 rows but  
head much larger than 2 no areas  
before or below spiracle but one between  
it and cth closely united to the latter  
Head 3 mm. The feet well developed.

This may be a small yuccae. The annu-  
lets are annulate. The head is pitted sha-  
greened, not pilose. Probably it is not  
yuccae. The appearance is different.




566

Feb 10  
1896

Spring on "maxberry" Chiococca racemosa  
Lake Worth, Fla. Dec 25 1895 sitting on small  
stem, singly, feet on 7 and 8 not used in rest.  
Head retractile at apex, body wider to 5  
then gently tapers to tail; 12 & 13 are both  
small the side angles of hind feet triangular,  
projecting beyond anal plate. Horn long,  
slender, from an enlarged base.

Annulets fine, distinct with none on 2<sup>d</sup>  
setae which are situated in paler spots  
occurring at all elevated into granules  
Sd line continues from middle of 2 to horn  
white, shading below into side color, more  
or less pale yellow at its sharp upper  
border. D. sp. light leaf green, an irregular  
but distinct greenish dorsal shaded  
greenish white band broadening out and  
filling in all d. space on 2-4, still ob-  
curely darker centered. All space below  
sd line likewise completely filled in  
with same greenish white with pale

2<sup>d</sup> dots. Spiracles white with median  
white sd band except on 5 which  
is white with a black dot on its post-  
side . The side color is and by  
faint darker green oblique bands  
which run from post. edge of seg. <sup>on 55 line</sup> up  
& forward <sup>broadest at base</sup> (reversed from normal) only on  
a single seg. 5-11. Sub str. line dorsal  
from anal feet forward to 11 white  
& yellow like sd and also pink  
shaded. Forward of 11 it becomes faint  
and is scarcely distinguishable ant. of 8.  
Horn pointed green with black spiracles  
apex pale. Head dark green with  
narrow obscure vertical pale band.

Antennae pinkish. W. 2.5 ± horn 4 mm  
Spring 28 mm

Observed bird Dec 25 P.M. and watched  
Resembles Chaerocampa in shape and marks  
Imago Feb 10 1896



Spun Jan 3. a large corn in cover without support  
 Pupa rounded, dot shape incisions not noticeable  
 All pale yellow, spiracles, eyes & a row of dorsal  
 marks black.

Imago Jan 26 1896 567 (see 569) *Chrysomelidae* 11982  
 2/2/96

III in grass, Lake with Fla, Dec 25 1895

Head yellow ocelli black mouth brown. W.  
 12 distinct yellow warts

Body yellowish 3-4, 12-13 feet and spiracles black

i-iii, iv small but distinct stig. feet, v, vi

normal, some large. Hair dense, fine of

even length, black & white mixed, the

white predominating appears pale gray

sparsely dashed with black. On 5 and 11

dense convoluted tufts laterally, the same

length as hair but heavily fringed the black

plumed. Hair all feathery. Side tufts

from III and IV on 5 etc. On 2 few hair

on 3 long ones from 3-4 the rest there as

in *Euchromia* ① sd ② lat (=iv+v) ③ S-V (=vi)

On 2 with 2 tufts (each side) near a cut

edge, a stig. & 5 or 6 short hair but few

on young leaves of *Mikania scandens*. Skin translucent


without marks. 8 glands show distinctly in

9 oval whitish sd glands. Hair does not

show body completely. Stopped eating Dec 31. Body  
 dark green. Head, feet and 12 orange yellow.

568

*Lemnia durni* from Red Grasshopper, Germany  
 recd. Dec. 25 1895 partly hatched.

Egg. Flattened circular with flat base 

d. aspect a circle. White, thickly mottled

with gray brown but leaving a distinct

though ill defined circle of white just

above base, at upper third (sd angle) and

a narrow one around the large black

micropylar spot. D. 1.4, height .9 mm

Slightly shiny. Laid partially adhering,

probably in nature in batches.

Stage I. Dark blackish, rust and incisions

pale. Hair abundant. Black with fewer

long white ones, few warts. Hd shiny

black, labrum pale, w. .6 ± rather square

bilobed, not retracted, rounded. (See also.)

small cut nothing. (Had no dark or plantain) a smaller unit  
 below, behind stig want on 3-4





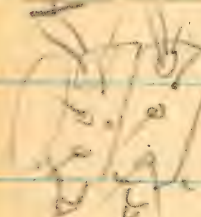
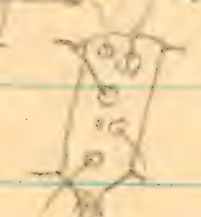
Calc. .29 .41 .59 .84 1.2 1.7 2.45 ratio .7  
 Found .3 .4 .6 .8 1.2 1.7 2.4

569 = 567

Egg laid by ♀♀ *Cosmocrana onychale* found  
 feeding on flowers of *Wikama scandens*  
 Lake Umbagog, Dec 28 1895. Single or in  
 sparse patches of 6-8 on sides of twigs.

Rather low conical with flat base, smooth  
 shining translucent waxy white faintly  
 tinged with yellow. No marks under lens.  
 Diam. .8, height .6 mm. <sup>Pits linear rounded 6-apical  
 irregular rows 4-sided, small  
 mixed</sup>

Hatched Jan 5 - Hd colorless, eyes black, body erect

  colorless, the hair single,  
 rather long, white. Anal feet  
 rather large, divergent. L. 2.5 mm

Later the dorsal <sup>(ii only)</sup> hair became blackish & the  
 warts blackish. Sat on back of leaf ate *Wikama*  
 Jan 12 Body colorless for green, head, tho. feet  
 joint 12 slightly yellowish, warts dusky.

Anal dusky by plate with several hairs  
 VII and VIII present on apical, both single

haired     
 (VII & VIII hairs  
 be also on 13  
 though not  
 seen as 3  
 head a d. view)

Has white glands in 9 attached to d. vessel.

Head has i, ii; 2 on clipped piece, 1 in Δ  
 and 1 on line above mouth. Some eye  
 detail approximated as represented.  
 Empty & gone in cover Jan 13. Whitish, head 2-4, 12-13  
 pale yellow.

Molt Jan 14 Hd yellow shiny, eyes black, w. 4. Body whitish  
 yellow at ends as in inst; warts all black, next  
 anal feet long, pale. Hair numerous, black & white  
 mixed, most white spinulose. W on 5 & 11 a  
 little bit larger than elsewhere, but hairs all alike  
 yellowish pale. (sh hd 1.2)

Another sent up in for plant of Mr. Knigeb. Hd 1.3 ± Body  
 same, warts blackish, hair black & white, thin  
 no tufts. Length 14 mm. Warts distinct contrasting.

Molt Jan 18 Hd 1.7 Hair mostly like inst. but no tufts of 5 & 11  
 5 & 11 are just signs warts with considerable hair. Hair all  
 alike black & white, a very fine long one on anal. W  
 distinct warty marks on 12. No spinulose & hair the 2 post  
 anal anal tubule of black hair from 14 & 11 suggests them.

Molt Jan 20 Hd 2.0 Like B5 567 with side tufts Hd 2+

Molt Jan 21 Hd .6 Whitish, but ends yellowish. Warts  
 blackish hairs black & white, all same. Hair quite  
 dense, spinulose, but not at all obscuring body.  
 Hair mainly curved, 6-10 from warts.

Molt Jan 29 Hd .8 ± Same, warts distinct, next  
 Hair a little darker but 5 & 11 indicating  
 the tufts had no plumose hairs.

Molt Jan 27 Hd 1.1 ±

Molt Feb 17 Hd. 2.1 ± (sh hd 1.4) Side tufts present

Another hd 2+ sh hd 1.5 ± " "

Another hd 1.6 (sh hd 1.2) no tufts

Spun Feb 28. Images



Hd green, jaws brown, ocelli black. w 1±  
 Spines colorless, stem finely clear pruinose (low)  
 Code 9 x 4 mm, 2.5 high. (\* most prominent 6-10  
 giving appearance of a  
 central dark green patch, faint & disappears under







- List <sup>VI</sup> 10mm 1± <sup>VII</sup> 14.5mm <sup>VIII</sup> 18mm - 20mm
- [1] Dec 27 On Acrocoloba | Shed <sup>14.5mm</sup> Jan - | Shed <sup>14.5mm</sup> Jan 14 end spines || L 20
- [2] Dec 29 On <sup>10mm</sup> mangrove | Shed <sup>13mm (caltropes)</sup> Jan - | Shed <sup>14.5mm</sup> Jan 18 | Shed: Feb 13 down || L 18
- [3] Dec 20 On Acrocoloba end spines || Spun. L 20
- [4] Dec 30 On Coconut end spines || Spun. L 20

1 pair end spines  
caltropes on ① 13  
② 6-12



Cable Length (end of stage)

1.7 2.4 3.4 4.9 7 10 14.3 20.4

Found

1± 2. 3.5

10 14.5 20

marker

②

marker

①



BB570

♂ & ♀ came out together June 3 1896. Left in box. Found mated Aug. June 4, parted by noon. Prof. ♀ in Tumbler with glass slide and oak leaf. Laid eggs night of June 4-5 over everything mostly on the cover.

Eggs singly or in little patches (2-7) slightly overlapping. Flattened, the upper surface low arched, elliptical but not of a constant shape 1.6 x .9 x .2 or thereabouts, vary in thickness as well as outline. Nearly transparent as seen on glass leaf, milky whitish on glass, pale yellow on white paper, shining; reticulation obscure, wavy, linear, angular 4-6 sided areas, only seen in a strong direct light.

Hatching night June 11-12 and Aug. June 12. Embryo forms curved ~~ventrally~~ ventrally, w. tail brachy. Before hatching it shortens and the body but only slightly still compressed sideways and the egg well flattened, emerges by a hole in the apex. Color squarish, horn visible and post. all shiny very pale yellowish color of egg, head and all; no marks. Length 1 mm. Setae rather long, stiff but sharp pointed. 3 from apex of each horn eyes black. 10 hours in each row ① 3-5 large - 6, 7 very small 8 large moderate, 9-10 very small 11-12 large

② 3-4 large, 6-13 fairly large (moderate)

① 6 crowded close to 5, 7 to 8. Side view shows that really 11 in ① and 9 in ②

thence 3 more or less retracted below but not really

within it, setiform on ant edge a big spinule; w. head .28 Antennae inserted under the large black eye, quite large article perfectly smooth, transparent. Mark between ocelli before hatching .17 mm Horns present but shorter, setae present before hatching.

Left ♀ well in died. Laid many eggs 150 ±. 92 hatched



June 13 squares up. Horns more prominent, ridges sharper, the dorsal area incised by the horns looking real 'code-like'. No ear, not shed, sit by shells June 14 the spines show through as black cones, esp. visible ① 3-5, 8; 11-12.

Shedding Aug. June 14 ① 3-5, 8, 11-12 very large, rounded, heavily bristly with large stiff black spines; 6-7, 9-10 very small, rounded, 1 spine

② Moderate with many spines, 3 or 4 larger than the rest.

Body squarish, ridges well marked by the large tubercles, widest through 3-4; all pale yellowish white much more opaque than before. Skin finely granular dotted, no marks.

Length 1.0 mm Hd pale, eye black, mouth horn; w. .3 mm, retracted



ate night June 14-15 - cherry. June 16 Horns ① on 4, 5 and 11 little red, otherwise no change. June 17 Length 1.8 mm. Feeds 'around steeple' in little patches 1-2 mm, rarely elongated. June 18 Length 2.0 mm feeding. June 19 " 1.9 " to shed. June 20 " " " eating. June 21 " 3.5 " to shed. June 22 " 3.3 " to shed. June 23 " 3.5 " to shed. June 24 " 3.9 " eating. June 25 " 4.5 " " eating. June 26 " 5.3 " " " June 27 " 5.2 " to shed. June 28 " 5.0 " " to shed. June 29 " 5.0 " " to shed.

[Shed June 29, noon. Hd. 8.0 mm. June 30 " 5.0 " eating. June 31 " 5.5 " hiding. but eats whole lot like IV, a broken white line along ②.

July 1 " 6.0 mm hiding. July 2 " 6.7 " eating. July 3 " 7.0 " " July 4 " 6.9 " to shed. July 5 " " " July 6 " 7.0 " feeding. July 7 " 8.5 " " July 8 " 9.0 " " July 9 " 9.9 " to shed.

Head 1 mm in width. June 12 mm including the horn. ⑦ 11 mm. Head 10 mm. narrow red line. very smooth. Horn all in the middle of the yellow band.

July 10 " 9.9 " to shed. July 11 " 10.2 " eating. July 12 " 13 " eating. July 13 " 14.5 " " July 14 " 16 " " July 15 " 14.5 " to shed. July 16 " " " "

July 16 caltropes and we pair of and spines. Calt ① 13. July 17 " 17.5 (15) eating. July 18 " 18 (15.5) " July 19 " 20 (17) " July 20 " 20 (17) " July 21 " 20.5 (18) " July 22 " 23 (18) " July 23 " 19.5 (16) " July 24 " " "

June 21 very shiny, green, but principally green at canal & horns. ② whitish colorless. a narrow faint yellow line along s.d. ridge. On 3-5, 8, 11, 12 red, ⑤ green tipped. Horns moderately spined the spines black tipped. On 6-7 9-10 with 1 or 2 spines. Skin finely, rather nervously watery granular. D. & s.d. depressed spaces indicated by whitish dots. Also the large lateral intersap(4). Still pinking. Hd. 4.2. June 22 Resembles most in shape & appearance. Green, a yellow narrow s.d. line, horns red as before. ① & 6 little smaller than the others. ⑥ and 10 very small with 3 or 4 spines, ① 7 & 9 moderate with 6 & 8 spines. A narrow pale d. line. Double intersap. add and 2 lateral rows, oblique set, of white glandular centers. ② horns very colorless. ③ a little longer than the others. ④ whitish eye black mouth brown. 6+ still pinking. Intersap d. depression is defined hollow with paired glandular dots. Ad. dorsal seg. patch, similar hollows. 2 lateral rows intersap. Skin smooth (C4) covered with not continuous, can & column w colorless, non setiform, scarred, conical cones, not sharp pointed showing a beautiful transition from sharp skin points to watery granules, very small, about .005 mm diam (5 μ) all the horns are smooth, without skin granules. No trace of caltropes.

July 10 " 9.9 " to shed. July 11 " 10.2 " eating. July 12 " 13 " eating. July 13 " 14.5 " " July 14 " 16 " " July 15 " 14.5 " to shed. July 16 " " " "

Calculations	I	II	III	IV	V	VI	VII	VIII	Σ
Width head	.21	.29	.42	.60	.86	1.2	1.7	2.5	mm
Full length	1.7	2.4	3.4	4.9	7	10	14.3	20.4	mm
	1.0	1.0-2.0	1.9-3.5	3.3-5.3	5.0-7	7-9.9	10-16	14.5-	

July 29 5.5  
30 5.5  
to shed  
July 31 6.8 eating  
2 8.5 "  
3 9.5 " to shed  
One went dormant soon July 17



Stage B with A's head. One with caltrop, the other without  
 no end spine. Jan 11 Ceph. 1 caltrop (26-12 11) 13 mm  
 the no calt. 14.5 mm. Described Jan 14 (lasted Jan 18, other Jan 17) End spine  
 present, which with caltrop. 4 no end spine. Jan 22 18 mm 14.5 mm  
 Jan 28 20 mm, other 16 mm 570 length 15 mm Last at Feb 13 L18

Enclos on Coccoloba floridana, Lake Worth  
 Fla. Dec. 27 1955. Elliptical, flattened,  
 highest bump 5, though not conspicuous. 3-5  
 green, dorsal flat, not tapering much at  
 ends, yellowish green, a narrow yellow d line  
 & dark clean green wavy line above sd  
 line. \* def. spaces whitish (paired inters.)  
 sd line rather broad, yellow 3-13, horns  
 short, slender 3, 4, 5, 8, 11, 12 longest and  
 bright red, 6, 7, 9, 10 short, 13 rather long,  
 colorless. Lat. space narrow, colorless,  
 shield with light green on latitudinal  
 ridges, 2 rows of white depressed dots  
 in broad inters. hollows. Lat. horns  
 rather long, alike 3, 4, 6-12, pale green,  
 3-4 hornish tipped. A broken pale lat.  
 line. S-v. space contracted colorless.

Hd green, jaws brown, occip. black. w 1 ±  
 spines colorless, skin finely clear granular (lens)  
 Code 9 x 4 mm, 2.5 high. (\* most pronounced 6-10  
 giving appearance of a  
 central darker green patch faint & disappearing under

Dec. 30 - 10 mm (inc. horns) & shed. The 4 pair of inters.  
 whitish glandular dots, 6-10 have 6-10 radiate dark  
 lines on a light green pigmented ground which  
 occurs in this 'patch' rule. Another on Mangrove  
*Aligophora mangrove*

Dec. 29. no caltrop or sprite patch  
 seen with lens. Length 1.0 mm  
Another on Coccoloba uvifera. Dec  
 30, length 20 mm (23 with horns); width 8  
 (11.5); height 4.5 mm. Same. horns 0 on  
 3 and 12 less reddish. a pair of small  
 spines above 13; pale brown caltrop patches  
 before tip of 2 above on 6-12 and also on the  
 sides of 13 before tip. Pale yellowish green,  
 a yellow sd band below horn 3-13, edged  
 below by a dark green line; a deeply wavy  
 green line above lat. ridge and a less deep  
 wavy one above sd ridge, both edged yellowish  
 d. yellow line faint. Inters. glandular dots  
 whitish 2 pair 3-4 & 6-8, and pair 5-12; lat.  
 an upper & lower inters. dot, the lower ant.

The sd dark line is faint  
 at segments, but has no  
 appearance since a central patch  
 Horns 3, 4, 5, 11, 12 long, 8 longer than 6, 7, 9, 10, but  
 all small; 8 red. 2 pale greenish. Larva  
 hides in curled leaf of clay. Skin sparsely  
 watery granular.  
 Another on coccoloba palm, Palm Beach Dec 30. 20 mm. Same  
 end spine (1 pair) and caltrop as above. Horns all green  
 only 4, 5 and 11 red tipped. [yellow line from  
 lower 2 of ridge, the upper 2 red green. Ridge edged  
 yellow 2 dark green lines, the horn 0 in the center]  
 green lines more distinct in this code than in above



Calc. 4 .6 .84 1.2 1.7 2.4 3.5 5.0 7.7  
1.3 3.5 5.0

571

Arctian? on Coccoloba floridana, Lake Worth  
Fla. Dec. 27, 1895. II Skin orange-brownish, a  
black sd shade 5-11, connected d. at  
ends and most pronounced there (5 & 11)  
i-iii black on 5 & 11 elsewhere warts brownish  
Head round, shiny brown, black on apex  
labrum bright white; w. 1.3  $\pm$  Hair  
short, thin, white with a few black  
esp. in dark marks and on 5 & 11.  
A short yellowish sd pencil on 4 and 12;  
a few longer pale hairs at ant. end.  
iv absent (4 lens) on abd, leg plate shiny;  
two warts on 3-4 above stip wart, one below  
it; 2 considerably retracted. sd pencil  
from ① on 4, ③<sup>iii</sup> on 12.

III Large a true 'note on Coccoloba unifera  
Palm Beach, Dec 30. Head round, shiny  
mahogany red, pale along sutures. Lower  
 $\frac{1}{2}$  of  $\Delta$  (= line above mouth) & bases of antennae  
white, shiny. w. 5 mm. Hair thick, obs-  
curing the body, uniform pale

May 19 1896 Halisidota crinita ♀  
Easton Oct June 22

chocolate brown crested and appearing  
darker along d. line. On 4 from ① and ③  
a white pencil and a few whitish  
long hairs from same warts on 3. The  
hairs separate 3-4 exposing the skin  
at incision which is slightly orange tinted  
the three upper warts on 3 and 4 being white  
& set off by black patches on the skin.  
A white pencil from ③ on 12. Skin fleshy  
brown (as far as I can see it) sparsely white  
2 is retracted its hairs directed forward over  
head. Hair finely combated. Warts i-vi on  
abd, from on 3-4. It distinct but not full size  
Length about 30 mm. Dec 31 three more vary in  
shade from very brown with whitish cast  
on the sides to chocolate brown. Body all  
red brown or spotted with black patches  
substg. more or less or all shaded with black  
except the legs. Orange incision 3-4 well  
exposed, set off by black and the six  
white rays (① 3, ① 3 4) the hairs from ③  
do not form more than a scattering tuft.



VIII stage before hds 3.5 mm Head red brown, a little blackish above the white line & white bases of antennae. Hair thin, skin shining. Notum brown with black d. shade & spiracular marks or blackish gray shading darker stig. Hair brown, notum tinged to chocolate pencil same. Mark in 3-4 pinkish, divided by d. black line & surrounded by black spotting. Long hairs from 3 scarcely defined into pencil brownish white. One shed, turned silver gray, blackish along the crest & in a wider patch 4-5

Sept 8  
1896

572

1896

Arizota on live oak, West Palm Beach Jan 1 of usual structure. (see bloom) 1<sup>st</sup> spines black, 13 long, 2<sup>nd</sup> granules sparse, white. Head shining red-brown. Body red brown a dorsal, subdorsal(i), lateral(iii), stigmal and sr divided black bands. Dorsal and stig. sharp, narrow, the other divided, the sr filling whole space. All except sr are divided by white shaded lines on the lower side, this below stig. line very distinct. All the line become obsolete on 12, leaving the anal end and all the feet red-brown. Single d. horn on 13, a pair on 12. W. hd 3.5-4 mm. In large examples the skin has a fleshy tint different from the head & plates, while the shaded lines tend to be broken at the 1<sup>st</sup> spines.

2<sup>nd</sup> 29 out in August 1896  
A. consularis n. sp.



573

Little *Datana* perhaps *minuta* on live oak  
West Palm Beach, Fla. Jan. 1 1896. Hd black  
(th. hd 1.7) 2 mm. Body red-brown, nearly black, shiny  
dorsal, rather citrine yellow, slightly confluent  
post. Pedal & v. distinct but suppressed  
logically showing black. Feet yellow except  
leg plate. C-th yellow except a mid dorsal  
black line. An. pl, thor. & anal feet black.  
Hair all white, the 2<sup>d</sup> short & dense,  
1<sup>st</sup> longer & sparse. Molt Jan 11. Same, <sup>black</sup> c-d  
very yellow with black central line, stripes  
fully as broad as spaces, dorsal yellow. Hair  
all white, rather abundant. Hd 2.75±  
Pedal & v. distinct, bases of feet orange  
Only one molt to last stage. Hair not  
long but of the length.

Probably *minuta* see alcohol.

Calc. .55 .78 1.1 1.6 2.3 (2.75) 3.3 ratio 70  
Found .5± .75 1.2 1.6 2.2 2.8 3.3  $\sqrt{70} = .84$   
*Compsoeca fidelissima* 574

Feb 11  
1896

Beautiful crimson & shiny violet <sup>(a juicy one in the sand)</sup> ~~hair~~  
larvae on *Echites umbellata*, solitary on  
a plant, toward the sea Palm Beach, Fla. Jan  
2, 1896. <sup>VII</sup> Head and body beautiful crimson  
red, not shiny; warts shiny red, certain  
of them shiny violet-blue, the areas  
around these warts discolored, blackish  
sprinkle pale orange. On 2-4 only the two  
lowest warts black; on 5, 6, 9, 10, 11 all the  
warts blue, the blackish shades predom-  
inating a-d; on 7, 8 & 12 warts iv-vi bluish  
Hair sparse, on 8-10 to a wart, stiff  
barbuled, rather short, black; from i on  
3, <sup>and 13</sup> a single stiff white hair 4 times  
as long as any other project forward  
over the head, probably serving as antenna  
A few longer black hair from 12 & 13.  
Warts i-vi & leg plate normal, iv rather  
small. On 3 i and ii a nearly fused but  
separable, more remote on 4; ii to a  
single hair rather next, iii a single hair



Larvae crazy, much to be made in the grass cotton  
oil still. Larvae Feb 14 1896 ♀

iv + v a good work as also vi. On 2 hairs from  
ant & first edge of cth, start before spiracle  
and 5-v. W. hd. 3.2 mm ± 3.4 ± 3.3 ± 2.2-3.0  
sh hd 1.2 mm Jan 4 hd. 1.6 like max. hd 2.2  
Stage III 1.2 ± The same. The color of the body is a  
black more orange, than blackish shades hind.  
Egg on same plant. 24 on back of leaf, laid  
occurring. Evenly rounded, and then hemis-  
pherical. O with flat base surface scarcely  
convex. Deep ochre yellow, very slightly  
shiny. Diam 1.3 mm; height .9 mm

With hd 2.8 mm (sh hd) like max. 5th black shade  
less distinct Length 2.0 mm = Stage V = VI  
Eggatched Jan 13 1896 hd rounded, shining. Body dull orange  
saps 5-6 9-11 reddish purple, warts darker than  
on purple saps. blue black; tho. feet & leg plates black  
Hair black. Strong & stiff, single from the warts  
spiracled & pointed. Hd orange w. 5 ± after rest  
with head curled down and feet elevated.  
Sh Jan 21 Hd 1.5 (sh hd 1.2) with many haired concolorous hairs  
on purple saps 5-6, 9-11 blue black. Hair black with  
the 2 long ones ant. no on max. feet black  
ant have central hair & radiating ones. on seg. 8 11  
which is single haired. vi present large. On thorax  
i long, not hairy like single hairs but large, fused to form  
side of i - seg. 15-16 max.  
Jan 28 Hd 1.1 eat the whole leaf - purple  
Jan 30 Hd 1.7 mm molt Feb 13 Hd 2.2 (ant. 16  
Feb 14 Hd 3.7 (sh hd 2.6) 2.8 (sh 2.3) 3.5 (sh 2.7)



*Pyntomoida epilais*

*Coronocarpus erecta* (Spanish oak) tree with  
ridges, leaf like margin  
*Wittmannia scandens* vine

*Chiricia rectoria* cactus

*Coccicola floridana* leaf  
*"* *livifera*

*Simarula glauca* (litter) leaf

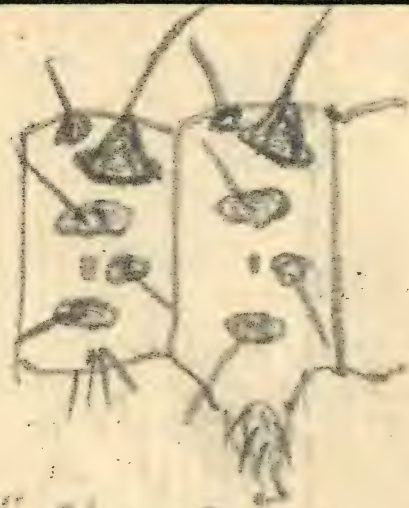
*Echites umbellata*  
*Citronella*  
*Citronella villosa*





BB 574

Stage I



VII 3 lined 5-6

VIII 1 "



VII 1 lined 11-13

VIII 1 "

C- the compartments with seeds  
not distinct. Anal pl. distinct



Our Motto will always be unvarying courtesy and truthf  
and unremitting activity in anticipating the demands of

# 144 - 146 West 125th

BETWEEN LENOX & SEVENTH AVENUE

Shed Feb 24

A 3.7 (sh 2.6)

B 2.8 (sh 2.3)

notice next week

sh 2.9

new shed 4±

Others shed

sh 2.5

2.2

2.3

2.5

2.6

2.4

2.5

2.5

2.4

2.3

2.5

Mar 5

4 shed again



Cornocarpus erecta (Spanish oak) tree with  
ridges, leaf like mangrove

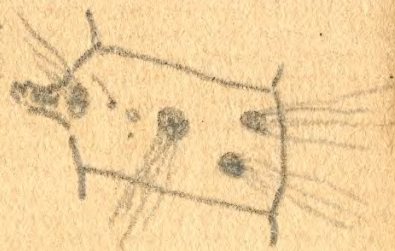
Mikania scandens vine

Phytolacca racemosa wax berry

Coccoloba floridana  
" " uvifera

Simaruba glauca (bitterwood) fl. & fr.

Asplenium epiphyllum



Echites umbellata

"composita" fr.

Citharexylum villosum?

red stem fls. 9 inches 16



Larvae crazy, much to hide in the grass & then  
sit still. Imago Feb 14 1896 ♀

iv + v a good wart (as also vi. On 2 hairs from  
ant & first edge of cth, start before spiracle  
and s.v. W. hd.  $3.2 \text{ mm} \pm 3.4 \pm 3.3 \pm$  L 20-30

sh hd 1.2 ~~mol~~ Jan 14 hd. 1.6 like mat. ~~mol~~ Jan 15 hd 2.2  
Stage III 1.2  $\pm$  The same. The color of the body is a  
brick more orange, than blackish shades hind.

Large Egg on same plant. 24 on back of leaf, laid  
scattered. Evenly rounded, more than hemis-  
pherical.  $\bigcirc$  with flat base, outline scarcely  
convex. Deep ochre yellow, very slightly  
shiny. Diam 1.3 mm; height .9 mm

At the hd 2.8 mm (sh hd) like mat. sd black shades

less distinct. Length 20 mm  $\pm$  Stage V' = VI

Egg hatched Jan 15 1896 Hd rounded, shining. Body dull orange  
Sept 5, 6 9-11 reddish purple; warts dusky, those  
on purple segs. blue black; tho. feet & leg plates black  
Hair black, strong & stiff, single from the warts  
spiracled & pointed. Hd orange w.  $.5 \pm$  after rest  
with head arched down and last feet elevated.

Sh hd 1.5 (sh hd 1.2) ~~mol~~ Jan 21 Hd. 1.5 with many varied maculae, those  
on purple segs 5-6, 9-11 blue black. Hair black with  
the 2 long ones ant. as in mat. Feet black.  
Warts have central hair & radiating ones, except ii  
which is single haired. vi present large. On thorax  
i large and ~~the same~~ ii a single hair but large, fused to line  
side of ii - seg. s.v. warts.

Jan 28 Hds 1.1 eat the whole leaf - pupate before

mol Feb 4 Hd 1.7 mm mol Feb 13 Hd 2.2 (last shed Feb 16)

mol Feb 24 hd 3.7 (sh hd 2.6), 2.8 (sh 2.3)  $\left\{ \begin{array}{l} 3.5 \text{ (sh 2.7)} \\ 2.9 \text{ (sh 2.3)} \\ 3.4 \text{ (sh 2.7)} \end{array} \right\}$



